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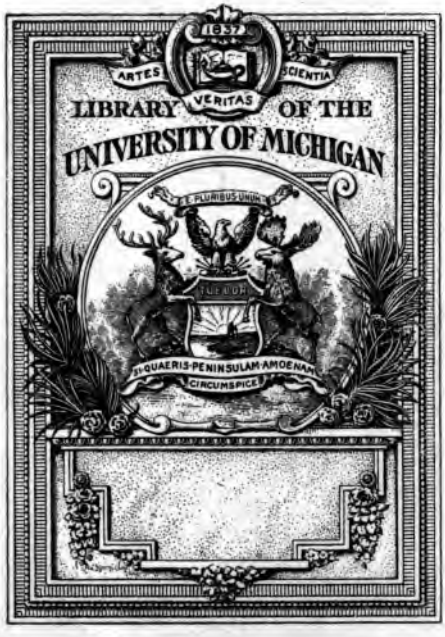
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D. W. Kusman

TRANSACTIONS

OF THE

SEMI-CENTENNIAL MEETING

OF THE

Ohio State Medical Society

HELD AT

COLUMBUS,

MAY 15, 16 AND 17, 1895.

TOLEDO, OHIO:
THE BLADE PRINTING AND PAPER CO.
1895.

The Fifty-first Annual Meeting

OF THE

Ohio State Medical Society

Will be held in Columbus,

May 27, 28 and 29, 1896.

OFFICERS FOR 1895-6.

DAN MILLIKIN, M. D., Hamilton,	President.
J. H. GOSS, M. D., Lancaster,	Vice-President.
WM. H. HUMISTON, M. D., Cleveland,	Vice-President.
JOHN A. MURPHY, M. D., Cincinnati,	Vice-President.
B. M. RICKETTS, M. D., Cincinnati,	Vice-President.
THOMAS HUBBARD, M. D., Toledo.	Secretary.
H. M. W. MOORE, M. D., Columbus,	Asst. Secretary.
JAMES A. DUNCAN, M. D., Toledo,	Treas'r and Librarian.

STANDING COMMITTEES.

FINANCE.

H. J. HERRICK, M. D., 1891. E. B. FULLERTON, M. D., 1893.
F. C. GRAY, M. D., 1892. N. P. DANDRIDGE, M. D., 1894.
J. G. F. HOLSTON, M. D., 1895.

ETHICS.

S. S. THORN, M. D., 1891. J. H. LOWMAN, M. D., 1893.
CHAS. L. VAN PELT, M. D., 1892. F. C. LARIMORE, M. D., 1894.
J. C. REEVE, SR., M. D., 1895.

PUBLICATION.

E. S. MCKEE, M. D., 1891. J. C. OLIVER, M. D., 1893.
L. S. COLTER, M. D., 1892. J. P. SAWYER, M. D., 1894.
R. HARVEY REED, M. D., 1895.
DAN MILLIKIN, M. D., *ex-officio*. THOMAS HUBBARD, M. D., Editor.

LEGISLATION.

D. J. SNYDER, M. D., 1891. J. F. BALDWIN, M. D., 1893.
C. E. BEARDSLEY, M. D., 1892. W. D. HAMILTON, M. D., 1894.
GEO. A. COLLAMORE, M. D., 1895.

ADMISSION AND MEDICAL SOCIETIES.

A. F. HOUSE, M. D., 1891. C. D. NOBLE, M. D., 1893.
A. R. BAKER, M. D., 1892. W. C. CHAPMAN, M. D., 1894.
A. B. RICHARDSON, M. D., 1895.

OHIO STATE MEDICAL SOCIETY.

At the Seventeenth Annual Meeting of the Ohio State Medical Society, the following resolution was adopted :

Resolved, That the publication of any address, prize essay, or other paper, by this Society, is no evidence of its endorsement of the sentiments therein contained.

Fiftieth Annual Convention

of the

Ohio State Medical Society,

May 15, 16 and 17, 1895.

Chamber of Representatives,
State Capitol Building,
Columbus, May 15, 1895.

The Society convened at 2:00 p. m., the President, D. N. Kinsman, M. D., occupying the chair.

Prayer was offered by the Rev. Dr. W. H. Fishburn.

It being impossible for either the Governor of the State or the Mayor of Columbus to be present, the Address of Welcome was delivered by the President, D. N. Kinsman, M. D., of Columbus.

The report of the Committee of Arrangements was made by Dr. N. R. Coleman.

Dr. C. O. Probst, Columbus, moved that the Secretary be authorized to employ a stenographer. Seconded and carried.

PARTIAL REPORT OF COMMITTEE ON MEDICAL LEGISLATION.

Dr. J. C. Culbertson, Cincinnati: As chairman of the Special Committee on Legislation, I beg leave to report that we held a committee meeting this forenoon in the Senate Chamber which was attended by representatives from about thirty counties in the State. The action of that committee was to endorse what is known as the Mosgrove Bill for presentation to the next Legislature, at the same time asking the State Society to make a small appropriation to meet the necessary expense account of an executive committee appointed by this Special Committee, in order to fairly organize the profession of the State in the conduct of its work for the ensuing year. (See complete report.)

Dr. G. A. Collamore, Toledo, moved the adoption of the report by the Society. Seconded and carried.

REPORT OF TREASURER.

Your Treasurer would report that within a few days after the adjournment of the last meeting of this Society, a statement of the unpaid dues was made out and mailed with a circular letter to each member whose dues were unpaid.

Some five weeks after, a duplicate statement, together with the following letter, was mailed to each member whose dues were still unpaid:

TOLEDO, Ohio, July 7, 1894.

DEAR DOCTOR: The contract for the 1894 Transactions of the Ohio State Medical Society has been let, and they will be ready for delivery on September 15th. Unless the dues are promptly paid it will be impossible to state

how many volumes to have published. All accounts remaining unpaid on August 1st will be sent to the local banks for collection without further notice.

Respectfully, JAMES A. DUNCAN.

In accordance with this letter, on the first day of August I sent to the various banks in the places where members lived, the accounts for collection.

In March of the present year I sent out another statement to those whose dues were still unpaid.

The result of these efforts was as follows: Six hundred and thirty-five members paid their dues for the year 1894, about eighty-four per cent. of the entire membership. Eighty-six members who paid in 1893 have not, so far, paid for 1894.

I desire to take this occasion to thank the members of the Society for the promptness and courtesy with which nearly all of them have responded to my demands. The collection of dues for a Society like ours is never a very pleasant task, and the payment of them perhaps as unpleasant. Yet a large majority of the members have, as I have stated, responded promptly and courteously to the call of the Treasurer, very much to his, and I think your, gratification.

The Finance Committee at the last annual meeting reported: "We also find that there is yet due from Dr. G. I. Cullen, our former Treasurer, $115.20, which they advise to collect." I made every effort to collect this account from Dr. Cullen by mail, etc., but failed. About the first of the present month, I sent Mr. J. J. Noland, an expert accountant, from Toledo to Cincinnati, to represent me in this matter. Mr. Noland returned to Toledo the following day with a check from the Doctor's bondsman for the full amount found due.

On September 1st I received from The Blade Printing and Paper Company, of Toledo, 806 copies of the Transactions of the meeting of last year. On the fourth of that month I sent a copy by American Express to all members who had paid their dues for 1894, at a cost of twelve cents each. I now hold the receipt of the express company, showing the name and address of each member to whom they were sent.

Two years ago, when I was first elected Treasurer, the debts of this Society amounted to about eight hundred dollars. I am pleased to report, Mr. President, that there is not at this date a single obligation outstanding against the Ohio State Medical Society that has been approved by the Finance Committee and Secretary; and the Society to-day pays on demand.

From my experience in the past I would recommend that the dues for 1895 be continued at two dollars. Action upon this can be taken early in the session, so that all who desire may have the opportunity to pay their dues while here.

A detailed statement of the receipts and disbursements of your Treasurer is submitted herewith.

1893.

Received, per previous report	$2,074 19	
Disbursed, per previous report	2,074 19	

RECEIPTS, 1894

From dues, account membership	$1,480 96	
From settlement G. I. Cullen's account.	112 20	
Advanced by Treasurer	3 79	
		$1,596 95

DISBURSEMENTS, 1894.

To Dr. Thos. Hubbard:			
Salary, Secretary	$ 125 00		
Salary, Editor	100 00		
Printing, stationery and expenses	161 45		
		$ 386 45	
To Dr. C. Graefe, Ass't Sec'y, R. R. fare and hotel bill		16 50	
To Dr. J. C. Oliver, printing and postage		17 23	
To Dr. Jas. A. Duncan:			
Salary, Treasurer	$ 125 00		
Advances refunded	39 39		
Printing and stationery	14 15		
Postage	42 20		
		220 74	
To Dr. T. W. Jones, balance salary as Treasurer		58 78	
To Dr. F. D. Brandenburg, worthless check credited for dues		2 00	
To Mr. J. J. Noland:			
Adjusting acc'ts of late Treasu'r.	$75 00		
Fee, collecting shortage same	20 00		
		$95 00	
Stenographic report Convention 1894		50 00	
Express charges		87 63	
Central Traffic Association		6 00	
Exchange, bank collections, dues,		18 45	
Publication Transactions 1894		638 17	
			$1,596 95

Respectfully submitted.

JAMES A. DUNCAN, *Treasurer.*

On motion the report was referred to the Finance Committee.

REPORT OF SECRETARY.

The auxiliary societies have responded to the provisions of the resolutions creating a Special Committee on State Medical Legislation, the Secretary having received nominations from forty-eight counties and societies. This action on the part of the State Society seems to have awakened a more intimate and active affiliation between the local and the State organizations. The support of this committee and the furtherance of its projects should continue to occupy the attention of the Society, not only for the ultimate object of securing medical legislation but also for the good of the central society. The following auxiliary societies have not forwarded names of representatives for this committee to the Secretary: Adams, Ashland, Ashtabula, Champaign, Clark, Clermont, Clinton, Erie, Miami, Summit, Wayne, and Union Medical Association Northeastern Ohio for counties in its district.

The following societies have not sent in the annual revised catalogue of members: Ashtabula, Clinton, Hildreth, Meigs, Stillwater.

The following are defunct: Columbus Medical Club, Licking County Medical Society, Summit County Medical Society.

LIST OF AUXILIARY SOCIETIES.

1. Academy of Medicine, Cincinnati, S. C. Ayers, M. D., 64 W. 7th street, President; N. E. Schenk, M. D., 65 W. 7th, Recording Secretary.

2. Adams County Medical Society, W. K. Coleman, M. D., West Union, President; Jas. W. Bunn, M. D., West Union, Secretary.

3. Allen County Medical Society, W. E. Hoover, M. D., Lima, President; S. S. Mumaugh, M. D., Lima, Secretary.

4. Ashland County Medical Society, J. P. Cowin, M. D., Ashland, President; R. C. Kinnaman, M. D., Ashland, Secretary.

5. Belmont County Medical Society, J. S. Boone, M. D., Powhattan, President; W. O. Huston, M. D., Bellaire, Secretary.

6. Brown County Medical Society, Thos. W. Gordon, M. D., Georgetown, President; L. Markley, M. D., Georgetown, Secretary.

7. Butler County Medical Society, M. Millikin, M. D., Hamilton, President; J. O. Scheel, M. D., Hamilton, Secretary.

8. Central Ohio Medical Society, Alice M. Johnston, Columbus, President; Geo. M. Clouse, M. D., Columbus, Secretary.

9. Champaign County Medical Society, S. M. Mosgrove, M. D., Urbana, President; H. M. Pearce, M. D., Urbana, Secretary.

10. Clarke County Medical Society, J. G. Kennan, M. D., Springfield, President; W. A. Smith, M. D., Springfield, Secretary.

11. Clermont County Medical Society, J. S. Coombs, M. D., Owensville, President; M. I. Marsh, M. D., Owensville, Secretary.

12. Columbus Academy of Medicine, A. B. Richardson, M. D., President; H. M. Platter, M. D., Secretary.

13. Crawford County Medical Society, H. L. Bevington, M. D., Sulphur Springs, President; A. M. Duncan, M. D., Bucyrus, Sec.

14. Cuyahoga County Medical Society, H. E. Henderson, M. D., President; B. F. Oswald, M. D., Cleveland, 2010 Detroit street, Sec.

15. Eastern Ohio Medical Association, B. O. Williams, M. D., Martin's Ferry, President; J. C. M. Floyd, M. D., Steubenville, Sec.

16. Erie County Medical Society, D. H. Young, M. D., Chicago, President; C. E. Perkins, M. D., Sandusky, Secretary.

17. Favette County Medical Society, B. F. Kellar, M. D., Bloomingburg, President; E. M. Boggess, M. D., Washington C. H., Sec.

18. Green County Medical Society, S. A. Cunningham, M. D., Cedarville, President; W. H. Findlay, M. D., Xenia, Secretary.

19. Hancock County Medical Society, M. M. Carrothers, M. D., Findlay, President; J. P. Baker, M. D., Findlay, Secretary.

20. Hempstead Memorial Academy of Medicine, G. M Marshall, M. D., Portsmouth, President; M. S. Pixley, M. D., Portsmouth, Sec.

21. Highland County Medical Society, W. W. Glenn, M. D., Hillsboro, President; H. M. Brown, M. D., Hillsboro, Secretary.

22. Holmes County Medical Society, F. J. Guittard, M. D., Killbuck, President; D. S. Olmstead, M. D., Millersburg, Secretary.

23. Jefferson County Medical Society—No meeting for two years.

24. Mahoning County Medical Society, H. H. Hahn, M. D., Youngstown, President; R. E. Whelan, M. D., Youngstown, Sec.

25. Marion County Medical Society, Dana A. Weeks, M. D., Marion, President; A. M. Crane, M. D., Marion, Secretary.

26. Miami County Medical-Chir. Society, Wm. R. Thompson, M. D., Troy, President; Warren Coleman, M. D., Troy, Secretary.

27. Miami Valley Medical Society, E. J. Tichenor, M. D., Lebanon, President; Con Gatch, M. D., Milford, Secretary.

28. Muskingum County Medical Society, J. M. Fassig, M. D., Zanesville, President; G. Warburton, M. D., Zanesville, Secretary.

29. Montgomery County Medical Society, Horace Bonnar, M. D., Dayton, President; W. N. Negley, M. D., Dayton, Secretary

30. North Central Ohio Medical Society, J. P. Sattler, M. D., Pavonia, President; R. F. Grubaugh, M. D., Mansfield, Secretary.

31. North-Western Ohio Medical Association, J. K. Woods, M. D., Van Wert, President; Chas. Graefe, M. D., Sandusky, Secretary.

32. Pike County Medical Society, J. L. Caldwell, Waverly, President; A. E. Bumgarner, Piketon, Secretary.

33. Piqua Medical Society, J. E. Schellenberger, M. D., Piqua, President; J. H. Lowe, M. D., Piqua, Secretary.

34. Portage County Medical Society, D. Reardon, M. D., Mantua, President; Geo. J. Waggoner, M. D., Ravenna, Secretary.

35. Ross County Medical Society, J. M. Leslie, M. D., Chillicothe, President; Chas. Miessa, M. D., Chillicothe, Secretary.

36. Sandusky County Medical Society, Jas. W. Wilson, M. D., Fremont, President; R. H. Rice, M. D., Fremont, Secretary.

37. Shelby County Medical Society, W. H. Harbauer, M. D., Anna, President; B. M. Sharp, M. D., Sidney, Secretary.

38. Toledo Medical Association, O. Hasencamp, M. D., President; C. P. Wagar, M. D., Secretary.

39. Trumbull County Medical Society, F. Casper, M. D., Niles, President; J. D. Harmon, M. D., Warren, Secretary.

40. Tuscarawas County Medical Society, J. E. Groves, M. D., Uhrichsville, President; J. Blickensderfer, M. D., New Philadelphia, Secretary.

41. Union Medical Association of Columbiana. Paul E. Barkhoff, M. D., Salem, President; J. H. Galvin, M. D., Salem, Secretary.

42. Union Medical Association of North-Eastern Ohio, L. S. Ebright, M. D., Akron, President; L. E. Sissler, M. D., Clinton, Sec.

43. Warren County Medical Society, H. J. Death, M. D., Franklin, President; E. S. Stevens, M. D., Lebanon, Secretary.

44. Washington County Medical Society, F. E. McKim, M. D., Marietta, President; C. W. Eddy, M. D., Marietta, Secretary.

45. Wayne County Medical Society, W. S. Battles, M. D., Shreve, President; J. D. Beer, M. D., Wooster, Secretary.

ADMITTED IN MAY, 1895.

Gallia County Medical Society, E. G. Alcorn, M. D., Gallipolis, President.

East Liverpool Medical Association, W. R. Clark, East Liverpool, President; W. T. Norris, East Liverpool, Secretary.

About 3,000 programs have been distributed by mail by the Secretary, and several hundred by the Committee of Arrangements. Together with this committee, over two thousand blank applications, with essential provisions of constitution relating to membership, have been mailed.

The following delegates were appointed to represent the Society at the American Medical Association meeting in Baltimore:

Jonathan Morris, M. D., Ironton; D. D. Wilson, M. D., Trenton; Thomas McQuaide, M. D., Cambridge; S. F. Forbes, M. D., Toledo; Augustus Rhu, M. D.; Marion; O. W. Weeks, M. D., Marion; X. C. Scott, M. D., Cleveland; W. A. Dixon, M. D., Ripley.

GUESTS BY SPECIAL INVITATION OF OFFICERS.

Senator J. M. Mosgrove, M. D., Urbana; Judson Daland, M. D., Philadelphia, Pa.

DECEASED MEMBERS.

W. W. Ellsberry, M. D., Georgetown.
Geo. C. Fann, M. D., Kelly's Island.
Virgil H. Gue, M. D., New Lexington.
J. J. McIlhenny, M. D., Dayton.
Julius Wolfenstein, M. D., Cleveland.
D. B. Woods, M. D., Warren.
John Campbell, M. D., Galion.
Harlan P. Allen, M. D., Columbus.
Isaac Newton Himes, M. D., Cleveland.

DISBURSEMENTS BY SECRETARY.

Stamps, express, etc., account editing Transactions	$ 7 50	
Stamps, general correspondence auxiliary societies and for Special Legislative Committee	9 50	
Stamps, distributing programs, etc	30 75	
		$47 75
March 16, 1895, Blade Printing & Paper Co., mailing record		1 15
To typing letters Special Legislative Committee (60)	4 11	
To typing letters to Congressmen (5)	75	
		4 86
Express Transactions	50	
Express programs	40	
		90
To folding, addressing and mailing programs and notices account Special Committee		15 00
Total		$69 66

Respectfully submitted.

THOMAS HUBBARD, *Secretary.*

The report was referred to the Finance Committee.

REPORT OF DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION.

As a member of your delegation appointed at the last meeting of this Society to attend the meeting of the American Medical Association, held in San Francisco last year, I wish to make a brief report, which ought to be and I think will be of interest, not only to every member of the Ohio State Medical Society but to every true friend of scientific medicine throughout these United States of America.

As your delegate, I was honored by an election to membership on the Board of Trustees of the American Medical Association, to fill the vacancy caused by the resignation of Dr. John B. Hamilton, who accepted the editorship of the Journal.

The year has been prosperous for the Association and especially so for its Journal. We have bought two new cylinder presses, folders, type, letter-presses, desks, and everything necessary to publish large editions of a first-class medical journal, all costing more than nine thousand dollars. We have, during the year, greatly enlarged the Journal; we have refused to accept undesirable advertisements, and have canceled all contracts for such as they have expired. We have had an income more than double that of any preceding year; we are out of debt, and have more than four thousand dollars in the hands of the Treasurer.

Our income for the last twelve months was more than twenty-nine thousand dollars, and as we have appropriated four thousand dollars to be used to pay for translations from foreign journals, for stenographic reports, extra editorials, etc., we expect a large increase in membership, every dollar of the fees from which will be used for the betterment of the Journal, already the largest medical periodical published on this continent. Its pages are enriched by the best work of the largest number of able writers who have ever contributed to any one journal. We are proud of our editor, and believe we have in Dr. John B. Hamilton the most accomplished editorial writer in the country, to whose masterly management we are indebted for the success of the Journal.

Most respectfully submitted.

JOHN ELIOT WOODBRIDGE.

Youngstown, O., May, 1895.

Dr. H. M. W. Moore, Columbus, was nominated to act as Assistant Secretary. Seconded and carried.

The following members were appointed to fill the Committee on Admissions: Dr. F. D. Case, Dr. E. C. Brush, Dr. W. C. Denman, Dr. J. A. Kimmel and Dr. W. C. Chapman.

The following Committee on Nominations was appointed by the President: Dr. John S. Beck, Dayton; Dr. J. F. Baldwin, Columbus; Dr. S. S. Haldeman, Portsmouth; Dr. N. P. Dandridge, Cincinnati; Dr. A. P. Courtright. Circleville.

READING OF PAPERS.

"The Physician—A Civic Factor," W. S. Phillips, M. D., Belle Center.

"Diphtheria, The Antitoxin Treatment of," W. T. Howard, M. D., Cleveland.

"Clinical Report on the Epidemic at Ashtabula," F. D. Case, M. D., Ashtabula.

"A Demonstration of the Technique of Culture-Tests," A. P. Ohlmacher, M. D., Cleveland. Discussion: H. M. W. Moore, Columbus; J. S. Haldeman, Zanesville; Dr. E. B. Fullerton, Columbus; Dr. L. S. Ebright, Akron; Dr. J. A. Murphy, Cincinnati; Dr. J. North, Toledo; Dr. Jos. Eichberg, Cincinnati.

"Fractures of the Skull," E. C. Brush, M. D., Zanesville.

Adjourned on motion to 7 P. M.

WEDNESDAY EVENING.

Called to order at 7:20 P. M. by President Kinsman.

Lecture: "The Pathology, Diagnosis and Treatment of Malaria," illustrated by Lantern Slides, Judson Daland, M. D., Philadelphia, Pa.

"Presentation of Two Cases of Leprosy," J. G. McDougal, M. D., New Lexington. Remarks by Dr. W. A. Hitt, Louisville, Ky., and Dr. McDougal.

Adjourned to banquet hall.

THURSDAY MORNING SESSION.

Call to order at 9 A. M. by Vice-President Probst.

Minutes of the previous sessions approved.

"Fractures of the Base of the Skull, with Special Reference to Eye Complications," C. W. Tangeman, M. D. Discussion: Dr. F. C. Larimore, Mt. Vernon.

Dr. Kinsman took the chair.

To fill the Committee on Finance, the President appointed Dr. E. Sinnett, Dr. E. B. Fullerton, Dr. N. P. Dandridge, Dr. G. A. Collamore and Dr. F. D. Bain.

The Committee on Ethics: Dr. H. D. Hinckley, Dr. C. L. VanPelt, Dr. J. H. Lowman, Dr. F. C. Larimore, Dr. E. J. Wilson.

Committee on Publication: Dr. J. C. Oliver, Dr. H. S. Upson, Dr. J. F. Baldwin, Dr. J. A. Bell, Dr. Jas. Reinhart.

"Deafness from Intra-nasal Disease," J. A. Thompson, M. D., Cincinnati.

"The State's Care of Dipsomaniacs," Chauncey P. Landon, M. D., Columbus.

"The Complications and Sequelæ of Epidemic Influenza (La Grippe), and their Prophylaxis," A. W. Hewetson, M. D., St. Clairsville. Discussion: Dr. E. B. Fullerton, Columbus; Dr. Caldwell; Dr. John North, Toledo.

"The Early Recognition of Cancer of the Cervix," Hunter Robb, M. D., Cleveland. Discussion: Dr. W. H. Humiston, Cleveland.

"Cervical Adenoma," W. J. Means, M. D., Columbus.

"The Treatment of Pneumonia," Joseph Eichberg, M. D.; Cincinnati. Discussion: Dr. G. A. Collamore, Dr. J. S. McClellan, Dr. L. B. Tuckerman, Dr. T. W. Rankin, Dr. Jos. Eichberg.

Adjourned to 1:30 P. M.

THURSDAY AFTERNOON.

Called to order at 1:45 P. M. President Kinsman in the chair.

REPORT OF COMMITTEE ON PUBLICATION.

REPORT OF EDITOR TRANSACTIONS 1894-5, TO THE COMMITTEE ON PUBLICATION.

Bids were requested in accordance with the inclosed contract, and three firms entered, viz., Hadley & Hadley, Wendt & Rausch, Blade Printing and Paper Co. The last bid was accepted (see contract). Work was begun about July 1st, and completed August 29th. Eight hundred and six copies were delivered to Librarian for distribution on September 1st. Total cost 806 copies of 502 pages, $627.17. This is .77 per volume of 502 pages, and .0015 per page (502 pages, 806 volumes).

THOMAS HUBBARD, *Editor.*

TOLEDO, June 18th, 1894.

SPECIFICATIONS FOR PRINTING AND BINDING TRANSACTIONS OF THE OHIO MEDICAL SOCIETY.

Bids are asked for setting type, furnishing all stock and materials, printing and binding an edition of about 750 copies of Transactions 1894, and furnishing reprints of articles therein printed, as specified below.

The book will contain about 450 pages, more or less, size of leaf when trimmed 5⅝ x 8⅛ inches, size of type page 3⅝ x 6¼ inches, or 22 picas x 38 picas, measured over all. Matter to be set in type specified hereafter from copy furnished by editor (about one-half of which is type-written); galley-proof to be delivered to the author and editor, and page-proof to the editor. Good black book ink to be used in the printing; stock for body to be on the basis of 25 x 38 inches, 50 lb. to the ream of 480 sheets, No. 1 sized and calendered toned book paper. Books to be bound in the best English cloth with blank embossing and gold title-back. Quality of stock and material, and workmanship and condition of type used, to be of equal grade to copy of Transactions 1893 which will be furnished.

Bidders will state *at what price per page* they will furnish the above specified work, such page price to cover all stock and work as follows:

For page set in long primer type, solid, @ $1.05 per page.

For page set in long primer type, leaded, @ .99¾ per page.

For page set in brevier, leaded, $1.45 per page.

Papers, Constitution and By-laws will be set in long primer leaded, discussions in long primer solid. List of members, index, etc., in brevier leaded. Such prices to cover 50 reprints, copies of articles in the volume, the same to be printed on the same kind of paper as used in the book and put up in pamphlet form, wirestitched, no cover. For pages of articles of which reprints are not demanded we will allow @ 10 cents per page. For tipping in two half-tones (one being a portrait), the same to be printed from plates furnished by the editor, on heavy coated book paper and tissue covered, $7.00. The price to include the wrapping of each book and packing of each reprint for express. All bids to be in

within three days from date, and to be opened June 21st.

Bidders will be required to specify as to the time required to complete the job, and give proper guarantee covering that point.

THOMAS HUBBARD, *Editor.*

We offer to furnish the above specified work at the prices filled in. Job to be completed on or before September 15th, 1894, provided there is no delay in return of proof, etc.

THE BLADE PRINTING & PAPER CO.

Toledo, Ohio, June 21st, 1894.

The committee recommends approval of the report of the editor of the annual Transactions, and that the form of contract used last year be printed in the Transactions in order that it may serve as a basis for future contracts.

Attention is called to the fact that delay in sending copies of articles read, to the Secretary, results in postponing the appearance of the printed Transactions. The committee requests members reading papers to promptly send in their articles (type-written if possible).

We recommend the appointment of Dr. Thos. Hubbard as editor for the coming year, and that he be allowed $100 as compensation for the service.

J. C. OLIVER.
J. C. REINHART.
A. E. BELL.
J. F. BALDWIN.
H. S. UPSON.

Report received and adopted.

REPORT OF THE COMMITTEE ON FINANCE.

The financial committee beg to submit the following:

Recommend, on motion, that $69.66 be allowed Secretary for expenses incident to his office.

That J. J. Noland be paid $25.00 for services rendered Treasurer.

That we find that the Treasurer's books are correct, and that we approve of Treasurer's bond and have placed it in the keeping of Secretary.

That assessment for current year be $2.00.

That an appeal for financial aid made by widow of late Dr. Gue, Perry County, receive favorable personal consideration.

Respectfully,

E. SINNETT,
E. B. FULLERTON,
F. D. BAIN,
G. A. COLLAMORE,
F. C. GRAY,
Committee.

On motion this report was adopted.

The President instructed the Secretary to read a communication from the American Medical Association.

CLEVELAND, O., May 13th, 1895.

D. N. Kinsman, M. D., President of the Ohio State Medical Society, Columbus, O.

DEAR DOCTOR: Under instructions from the Judicial Council of the American Medical Association I herewith hand you the charges which were preferred against the Cleveland Medical Society by Dr. D. R. Jennings. The following is the decision of the Judicial Council in regard to this matter:

"*Resolved*, That the charges against the registration of members from the Cleveland Medical Society, etc., should be referred for adjudication to the Ohio State Medical Society, and until so adjudicated, the application for registration as members of this Association remain suspended, and if anyone has already been allowed to register, his money should be returned."

I feel that it is also my duty to announce to you that should either party feel aggrieved at the findings of the Committee of Ethics of the State Society, they will have the right of appeal to the Judicial Council of the American Association for a final hearing and adjudication. Very truly yours,

X. C. SCOTT.

Secretary of the Judicial Council
American Medical Association.

May 14th, 1895.

D. N. Kinsman, M. D., President of the Ohio State Medical Society, Columbus, O.

MY DEAR DOCTOR: I hereby object to any active member of the Cleveland Medical Society serving on the Committee of Ethics of the Ohio State Medical Society.

2d. I further object to any active member of the Cleveland Medical Society being permitted to participate or take part in the proceedings of this State Medical Society, in accordance with the finding and resolution adopted by the Judicial Council of the American Association. Very truly yours,

X. C. SCOTT.

HALL OF REPRESENTATIVES,
COLUMBUS, May 16, 11:45 A. M.

Dr. X. C. Scott, Secretary Judicial Council American Medical Association.

The Cleveland Medical Society is not auxiliary to the Ohio State Medical Society. Under these circumstances I must decide that the Ohio State Medical Society has no jurisdiction in the matter referred to it by the American Medical Association, concerning the Cleveland Medical Society.

Members are not present at this meeting as delegates from or members of that society, but as members of the State Society. Therefore the protest cannot be considered by the Ohio State Medical Society.

(Signed)

D. N. KINSMAN,

President Ohio State Medical Society.

Dr. X. C. Scott moved, seconded, that this decision be referred back to the American Medical Association. Carried.

ELECTION OF OFFICERS.

The following were the nominations for President:

Dr. G. A. Collamore nominated Dr. F. C. Larimore, Mt. Vernon. Seconded by Dr. Rufus B. Hall and Dr. W. H. Humiston.

Dr. H. D. Hinckley nominated Dr. Dan Millikin, Hamilton. Seconded by Dr. F. D. Bain and Dr. X. C. Scott.

Dr. Ed. Ricketts nominated Dr. P. J. Klein, Portsmouth. Seconded by Dr. Marshall. Dr. Klein withdrew.

On motion by Dr. B. M. Ricketts, the nominations were closed.

The Chair appointed as tellers, Dr. E. J. Wilson, Dr. A. N. Dennison, Dr. F. W. Blake, and Dr. B. M. Ricketts.

The Nominating Committee reported through Dr. J. S. Beck as follows:

Vice-Presidents, J. H. Goss, M. D., Lancaster; Wm. H. Humiston, M. D., Cleveland; John A. Murphy, M. D., Cincinnati; B. M. Ricketts, M. D., Cincinnati.

Secretary, Thomas Hubbard, M. D., Toledo.

Assistant Secretary, H. M. W. Moore, M. D., Columbus.

Treasurer and Librarian, James A. Duncan, M. D., Toledo.

Finance Committee, J. G. F. Holston, M. D., Zanesville.

Committee on Ethics, J. C. Reeve, Sr., M. D., Dayton.

Committee on Publication, R. Harvey Reed, M. D., Columbus.

Committee on Legislation, Geo. A. Collamore, M. D., Toledo.

Committee on Admissions, A. B. Richardson, M. D., Columbus.

On motion of Dr. X. C. Scott, the report was received and adopted.

Dr. Baldwin moved to meet at Columbus. Seconded by Dr. J. C. Culbertson. Carried.

Dr. X. C. Scott moved that the time of meeting be the fourth Wednesday in May. Seconded by Dr. Collamore and carried.

Dr. G. A. Collamore moved a vote of thanks to Dr. Daland for his entertaining, able and instructive lecture. Seconded and carried.

Dr. Collamore nominated Dr. Daland an Honorary Member of the Society. Seconded and carried unanimously.

Report of the tellers on the election of President: Dr. F. C. Larimore 91, Dr. P. J. Klein 3, and Dr. Dan Millikin 97 votes.

Dr. X. C. Scott moved the report of the tellers be adopted and Dr. Millikin be made the unanimous choice of the Association. Seconded and carried.

Dr. Dan Millikin, the President-elect, was presented by President Kinsman, and, after returning his thanks for the honorable office conferred upon him, retired from the hall, as he was obliged to leave the city.

Address of the President.

Reading of papers resumed.

"Cancer of the Breast: Remarks on the Pathology and Treatment," J. C. Oliver, M. D., Cincinnati. Discussion: Dr. B. M. Ricketts, Cincinnati.

"Circumscribed Thoracic Empyema," Geo. A. Collamore, M. D., Toledo. Discussed by T. M. Sabin, M. D., Warren.

"Uterine Reflexes," W. H. Humiston, M. D., Cleveland.

"Is this Leprosy?" J. G. McDougal, M. D., New Lexington. Discussion: Dr. Hays, Dr. A. W. Hitt, Louisville, Ky.

Dr. H. M. Brown: It seems certain that the diagnosis of leprosy in these cases is so far unchallenged. These gentlemen have come here to ask that something be done by the State. I therefore move that the State Board of Health be requested to investigate this matter, with the view to protection. Seconded and carried.

"The Value of so-called 'Local Treatment,'" J. F. Baldwin, M. D., Columbus. Discussion: Dr. Edw. Ricketts.

"Medicine," W. S. Battles, M. D., Shreve.

On motion by Dr. Wilson, a special vote of thanks was extended the Committee on Admissions, in view of their

arduous services, having been in almost continuous session during the convention.

"Systemic Dissemination of Tuberculosis from a Patch of Lupus Vulgaris," Robert Peter, M. D., Toledo.

"Report on Typhoid Fever," continued, John E. Woodbridge, M. D., Youngstown. Discussion: Dr. E. W. Mitchell, Dr. Geo. A. Fackler, Dr. J. E. Woodbridge.

Friday Morning Session.

President Kinsman in the chair.

Minutes of the previous meetings approved.

Dr. L. B. Tuckerman gave some explanatory remarks regarding the Cleveland Medical Society, whereupon Dr. Upson moved that the report of the Executive Committee in reference to the Cleveland Medical Society be reconsidered. The motion was seconded by Dr. Cook and carried.

Dr. Tuckerman moved to amend the report by changing "legally qualified practitioner of medicine" to read "any practitioner of medicine of good moral and professional standing in the community where he resides." Seconded by Dr. Wirt.

Dr. Landon spoke adversely to the amendment, claiming that the Society has no right to so enact.

Dr. Humiston believed the resolution in conformity with the American Medical Association.

Dr. Chapman spoke in behalf of the report of the committee as adopted.

Dr. Wirt was willing to change "legally qualified practitioner" so as to strengthen the force of the clause.

Dr. Loving thought the whole matter in the hands of the American Medical Association, and that the State Society had no right to act on it.

Dr. Upson failed to see how the matter is before the American Medical Association. The American Medical Association has said nothing and will say nothing in regard to the relation of the Cleveland Medical Society to the Ohio State Medical Society. The question raised there was whether the delegates of the Cleveland Society should be allowed to register. That was referred back to this Society. The question as to the relation of the Cleveland Society to the State Society can be settled only by this Society.

It was moved by Dr. Davis, and seconded, to lay the whole question on the table. Carried. Division: Yeas, 51; nays, 18.

In answer to the question, what is the standing of the members of this Society who are also members of the Cleveland Medical Society? the President said: "We know nothing about you as members of the Cleveland Medical Society. We only know you as individuals and members of this Society. The affiliation of the Cleveland Medical Society is not at this time complete, but you are, and we are glad to say it, members of the State Society."

Question: Then the members of a Society denied affiliation in the State Society, can be members of this Society?

The President: "I rule this: Any gentleman who has come here and been elected to membership in this Society, can be a member of this Society, even if a member of a Society not auxiliary to the State Society."

An invitation was then extended from the Cleveland Medical Society to attend a lecture by Dr. H. C. Wood, Philadelphia, June 18th, in Cleveland, under the auspices of the Cleveland Medical Society.

It was moved, seconded and carried, to proceed to the regular order of business.

Dr. Coleman introduced a resolution as follows:

WHEREAS, The Special Committee on Legislation appointed by the State Medical Society at its last annual meeting has recommended a certain form of bill for adoption by the Ohio Legislature at its coming session, and said bill has been adopted by the present session of the said State Medical Society ; and

WHEREAS, Said Committee on Legislation has appointed a subcommittee to have in charge the interests of said bill, to correspond with local societies throughout the State, to visit such points as may be necessary, and to secure a zealous support of said bill by the profession throughout the State; and

WHEREAS, Certain expenses will be necessary on the part of said subcommittee : therefore,

Resolved, That the members of the State Medical Society be assessed the sum of two dollars each, to be paid to the treasurer of said subcommittee.

After discussion, the motion was lost.

Dr. Humiston offered the following resolution :

WHEREAS, The Ohio State Medical Society has placed itself on record as endorsing the Mosgrove Bill: be it therefore

Resolved, That this Society request that no member of this body introduce another bill.

Seconded and carried.

"How to Recognize Incipient Insanity," A. B. Richardson, M. D., Columbus. Discussion: Dr. Phillip Zenner, Cincinnati.

The following resolution was then offered :

Resolved, That the thanks of the Ohio State Medical Society be extended to the officers and members of the Senate and House of Represenatives, to the Adjutant-General, Col. Fred Blenkner, and the clerks of the House and Senate, for their untiring efforts to make the pres-

ent meeting pleasant and the surroundings such as to facilitate its work.

The resolution was seconded by Dr. J. A. Thompson and carried.

"Neural Infixation," R. Harvey Reed, M. D., Columbus. Discussion: Dr. Carl Huber of Ann Arbor, Mich.

Dr. J. A. Thompson, Cincinnati, offered a resolution:

Resolved, That the Executive Committee of the Special Committee on Legislation be authorized to draw on the Treasurer of this Society for the sum of three hundred dollars ($300) or such part thereof as may be necessary to secure a thorough organization of the profession throughout the State before the election of members of the next Legislature.

Dr. C. O. Probst seconded the resolution.

Dr. Thompson said: A year ago, in Zanesville, we appointed a Special Committee to do this work of organizing the State. About thirty members of this committee met before the beginning of the State Society this year and approved the Mosgrove Bill, which is familiar to most of the members. That committee, which is a continuous one, appointed an Executive Committee to aid in organizing the profession throughout the State and to secure the election, so far as possible, of men who favor our interests in this bill. Now, it is necessary for this Executive Committee to distribute certain information through the State, so that we may be able to favor our friends and oppose those who oppose us. To get out these circulars, etc., will cost between $250.00 and $300.00. Unless we have some appropriation, the committee will either have to let the work drop or go down in their pockets and trust the Society to repay them next year. Now, we should not let the work drop and we should not let the individual members of the committee pay the bill. The Society ought to make provision

for this necessary expense. The profession is waked up throughout the State as never before, and a little co-operation under the head of a committee such as we have appointed, will bring about the result we have desired so long. I hope there will be no opposition to this resolution, now its purposes are so well understood.

Dr. N. R. Coleman: I introduced a bill this morning, asking for an assessment upon the members of the Society. I did not urge the resolution, hoping to hear from the members, but it was cut off too short. The General Legislative Committee of the State have appointed an Executive Committee of five, of which they have made me chairman. We have been canvassing every detail of this, and we find an immense amount of work and considerable money must be expended. Now, if you have appointed us as an Executive Committee, don't bind us hand and foot and leave us without a dollar. We wish to effect an organization even down to the school districts of the State of Ohio. I, as chairman, feel we must not neglect one iota, as only through a perfect organization can we expect to accomplish anything. We will have an organization of almost a hundred county representatives from the different counties and medical societies, and this subcommittee has been appointed as an Executive Committee. The actions of this Executive Committee must be attended with a certain amount of expense. And so we ask you to make some provision for this matter, so we can report to you next year that we have been successful and that the profession is on an honorable standing in this State. We hope to be able to make such a report, and if you grant us the little pittance of $300.00, we will make the fight to the best of our ability. We have agreed to send out as many as possible of these circulars, giving you a statement of how each member of the House of Representatives has voted, giving you the official vote in print, so you may

see who is the man for you and who is the man against you.

Dr. J. E. Woodbridge, Youngstown: I wish to amend the gentleman's motion to $500.00. Seconded and carried.

The resolution as amended was carried unanimously.

"The Prognosis of Paralysis," Phillip Zenner, M. D.

Dr. Baldwin moved to amend the by-laws to the effect that not to exceed ten minutes be allowed in the reading of any paper. Seconded.

The amendment was discussed favorably by Dr. Chapman and Dr. Collamore.

Dr. Baldwin: The papers for reading purposes shall be, perhaps, merely synopses of the papers brought before the Society. We want discussions. I think there has not been a paper read here but could have been condensed for practical purposes to ten minutes.

Question. Carried unanimously.

"Remittent Miasmatic Fever," James Macready, M. D.

Dr. DeBeck offered the following resolution, which was adopted unanimously:

WHEREAS, The local committee and the profession of Columbus have entertained the Society in a manner worthy of our semi-centennial:

Resolved, That a vote of thanks be tendered the local committee, the local profession and the ladies of Columbus for their generous courtesy and overflowing hospitality, and the same be spread upon the minutes.

Resolved, That a vote of thanks of this Society be tendered Col. Fred Blenkner, Third Assistant Sergeant-at-Arms of the House of Representatives, for the untiring aid he has rendered the local committee and for services that have made these meetings the success they have been.

"Spondylitis vs. Scoliosis," S. L. McCurdy, M. D.

Dr. Chapman moved when we adjourn, to adjourn until the fourth Wednesday of May, to meet in Columbus. Seconded. Carried.

Dr. Collamore moved to continue the session half an hour, and all the papers unread at that time be read by title. Seconded and carried.

"Some of the Pathological Conditions of the Nose Secondarily Affecting the Eye," W. A. Melick, Zanesville.

Minutes of the previous sessions read by the Secretary and approved.

President Kinsman: Members of the Ohio State Medical Society, I desire at this time to thank you for your support and courtesy and everything you have done to render my position in this chair pleasant. I think we have had an exceedingly pleasant meeting, the largest, I presume, in the history of the Society; and I suppose, although I have not been in position to follow it carefully, that the work which has been done is worth more, possibly, than that of any other meeting we have had.

Dr. W. C. Chapman: I move we thank our President for the efficient manner in which he has presided at these meetings. Seconded and carried unanimously.

Adjourned.

THOMAS HUBBARD, *Secretary.*

DELEGATES.

The following presented their credentials:

Adair, S. G.....Washington Co. Med. Soc.
Alcorn, E. G.....Gallia Co. Med. Soc.
Alcorn, J. B.....Gallia Co. Med. Soc.
Buckner, Jas. H.....Acad. Med. of Cincinnati.
Chrisholm, H.....Marion Co. Med. Soc.
Clouse, G. M.....Central Ohio Med. Soc.
Culbertson, J. C.....Acad. Med. of Cincinnati.
Emmons, D. R.....Champaign Co. Med. Soc.
Entrekin, F. W.....Hancock Co. Med. Soc.
Getzloff, Bruno.....Shelby Co. Med. Soc.
Glenn, W. W.....Highland Co. Med. Soc.
Harding, Benj. F.....North Cen. Ohio Med. Soc.
Hoff, J. W.....Meigs Co. Med. Soc.
Hough, Chas. A.....Warren Co. Med. Soc.
Johnston, Alice M.....Ohio Central Med. Soc.
Kimmel, J. A.....Hancock Co. Med. Soc.
Larimore, F. C.....North Cen. Ohio Med. Soc.
Lehman, C. W.....Preble Co. Med. Soc.
Lindsay, J. A.....Eastern Ohio Med. Soc.
McClure, James.....Washington Co. Med. Soc.
McKim, T. E.....Washington Co. Med. Soc.
Shields, E. H.....Acad. Med. of Cincinnati.
Souchery, D. C.....Med. Soc. of State of W. Va.
Trickle, E. H.....Washington Co. Med. Soc.
Uhler, H. L.....Marion Co. Med. Soc.

REPORT OF COMMITTEE ON ADMISSION.

The following Doctors of Medicine were elected to membership, having been recommended by the Committee on Admission:

E. G. Alcorn, University of Louisville, Ky., Gallia Co. Med. Soc.
C. O. Allen, University of Ohio.

L. C. Backus, University of Michigan.
M. E. Blackburn, Toledo Med. Col. and O. M. U., Columbus A. of M.
C. M. Bethauser, Starling Medical College, Columbus Acad. of Med.
H. Blankenhorn, Med. Dep. Western Reserve Univ., U. M. A. N. E. O.
S. S. Burrows, University of Michigan, Ashtabula Co. Med. Soc.
E. O. S. Brown, Starling Medical College, Pike Co. Med. Soc.
H. Chisholm, { Grant University of Tenn., R. C. P. & S. Edin., Scotland. } Marion C . Med. Soc.
C. W. Chidester, Columbus Medical College.
J. E. Cook, Wooster Medical College.
B. F. Collins, Columbus Med. College, E. Ohio Medical Association.
A. P. Cole, Col. P. & S. N. Y., Ross Co. Medical Soc.
E. C. Cope, Ohio Medical University, Belmont Co. Medical Soc.
Ben. Davis, Med. College of Indiana, Clark Co. Medical Soc.
W. H. Dennis, Ohio Medical University.
W. D. Deuschler, Dartmouth Med. Col., Columbus Acad. of Med.
M. F. Dixon, Rush Medical College, Columbus Academy of Med.
J. M. Dunham, Detroit Med. College, Columbus Academy of Med.
R. C. Edwards, College of Physicians and Surgeons, Baltimore, Md.
E. J. Emerick, L. I. Col. Hosp., Central Ohio Medical Society.
D. R. Emmons, Med. College of Ohio, Champaign Co. Med. Soc.
G. B. Farnsworth, Med. Dept. Wooster Univ.
W. R. Flower, Med. Dept. Western Reserve, Ashtabula Co. M'd Soc.
J. F. Fox, Med. Dept. Wooster Univ., Tuscarawas Co. Med. Soc.
H. C. Fraker, Med. Dept. Wooster Univ., Columbus Acad. of Med.
J. L. Gahm, Med. College of Ohio, Hempstead Academy of Med.
B. Getzloff, Med. College of Ohio, Shelby Co. Medical Society.
W. W. Glenn, Starling Med. College, Highland Co. Medical Soc.
C. W. Goss, Starling Med. College.
W. H. Guiss, Med. Dept. Western Reserve, Crawford Co. Med. Soc.
W. W. Hamer, Indiana Medical College.
C. H. Hamann, University of Pennsylvania.
C. S. Hart, Columbus Medical College.
J. D. Harmon, University of Penna., Trumbull Co. Med. Soc.
J. D. Hayes, Columbus Med. College, Perry Co. Med. Soc.
G. W. Heffner, Starling Medical College.

H. L. Hewetson, University of Penna., Tuscarawas Co. Med. Soc.
H. B. Herrick, Med. Dept. Western Reserve, Cuyahoga Co. Med. Soc.
A. W. Holmann, University of Vermont.
W. T. Howard, Jr., University of Maryland, Cuyahoga Co. Med. Soc.
W. W. Homes, Columbus Medical College.
G. L. Hoege, Med. Dept. Univ. of Wooster, N. W. Ohio Med. Ass'n.
W. D. Hoge, Med. Dept. Western Reserve, Eastern Ohio Med. Soc.
E. E. Hughes, Med. Col. of Ohio.
O. W. Hulin, Columbus Med. Col., Union Med. Ass'n of N. E. Ohio.
D. E. Hughs, Miami Medical College.
M. M. Jacobs, Miami Medical College, Butler Co. Medical Soc.
T. W. Jackson, Jefferson Med. College, Northeastern Ohio Med. Ass.
M. J. Jenkins, Miami Med. College, Central Ohio Med. Soc.
Alice M. Johnston, Women's Med. Col. of Peru, Cen. Ohio Med. Soc.
H. S. Jones, Starling Medical College.
L. Kahn, Starling Med. College, Columbus Academy of Medicine.
P. J. Kline, Bellevue, N. Y., Hempstead Academy of Medicine.
J. C. Lawrence, Columbus Med. College, Columbus Acad. of Med.
C. W. Lehman, Medical College of Ohio, Preble Co. Med. Soc.
J. A. Lindsay, Med. Dept. Western Reserve, Eastern Ohio Med. Soc.
S. B. Lusk, Starling Medical College, Marion Co. Medical Society.
G. M. Marshall, Bellevue Hos. Med. Col., Hempstead Acad. of Med.
F. B. McNeal, Bellevue Hospital Medical College.
A. F. McVety, Royal College Kingston, Can.
R. J. Morgan, Jefferson Med. College, Northwestern Ohio. Med. Assn.
J. F. Morgan, Columbus Med. College, Hempstead Acad. of Med.
D. L. Moore, Med. Dept. Univ. of Wooster, Columbus Acad. of Med.
C. F. Murphy, Bellevue Hosp. Med. Col., Hempstead Acad. of Med.
C. W. Newton, Medical College of Ohio.
J. J. Nungesser, Med. Dept. Western Reserve.
N. Obitz, Starling Medical College.
A. P. Ohlmacher, Med. Dept. N. W. Univ., Cuyahoga Co. Med. Soc.
O. H. Patrick, Western University, London, Canada.
W. S. Phillips, Columbus Med. College, N. W. Ohio Med. Soc.
L. C. Pratt, Jefferson Medical College.
F. K. Price, Jefferson Medical College, Tuscarawas Co. Med. Soc.

R. J. Pumphrey, Cincinnati Med. College, Belmont Co. Med. Soc.
W. C. Rank, Miami Medical College.
J. H. Ray, Col. of Phy. and Surg. of Baltimore, So'n Ohio A. of M.
I. Redrow, Miami Medical College, Batavia Co. Medical Soc.
W. H. Rheinfrank, University of Michigan.
A. Richards, Cincinnati Medical College, Perry Co. Med. Soc.
W. K. Rogers, University New York, Columbus Acad. of Med.
G. W. Sampson, College of Physicians and Surgeons, Keokuk, Iowa.
W. F. Scatterday, Columbus Medical College.
E. H. Shields, Miami Medical College.
P. D. Skinner, Starling Medical College.
C. Snyder, Medical College of Ohio.
D. M. Smith, Miami Medical College.
F. L. Stillman, Bellevue Hosp. Med. Col., Columbus Acad. of Med.
Geo. Stockton, Bellevue Hosp. Med. Col., Columbus Acad. of Med.
L. Stricker, Medical College of Ohio, Cincinnati Academy of Medicine.
C. F. Talley, Miami Medical College.
F. E. Thompson, Columbus Med. College.
J. Frances Trout, Woman's Medical College of Pennsylvania.
H. L. Uhler, Jefferson Medical College, Marion Co. Med. Soc.
B .C. Vorhes, Medical College of Ohio.
H. W. Whitaker, Starling Med. College, Central Ohio Med. Soc.
S. S. Wilcox, Starling Medical College, Columbus Academy of Med.
C. H. Willson, Medical College of Ohio, Pike Co. Medical Society.
W. E. Williams, Medical College of Ohio, Hempstead Acad. of Med.
E. W. Woodruff, Starling Medical College.
W. H. Woodworth, College of Physicians and Surgeons, Baltimore.

IN ATTENDANCE AT COLUMBUS MEETING.

Adair, S. G.----------Beverly.
Alcorn, E. G.----------Gallipolis.
Alcorn, J. B.----------Gallipolis.
Alderman, W. N.----------Athens.
Aldrich, Chas. J----------Cleveland.
Allard, L. D----------Flat.
Allen, C. O.----------Haydenville.
Andre, O. C.----------Waverly.
Backus, L. C----------Fayette.
Bain, F. D----------Kenton.
Baldwin, J. F----------Columbus.
Barnhill, J. U----------Columbus.
Barrere, D. M----------Dayton.
Bartley, M. A----------Columbus.
Bates, F. L----------Lima.
Battles, W. J.----------Shreve.
Beck, J. S----------Dayton.
Begg, W. W----------Columbus Grove.
Bell, A. E----------Zanesville.
Bennett, W. C----------Iberia.
Bethauser, C. M----------Columbus.
Bird, E. H----------Dupont.
Blackburn, M. E----------Columbus.
Blankenhorn, H. B----------Orrville.
Blake, F. W----------Columbus.
Blake, W. H----------Shadeville.
Bleile, A. M----------Columbus.
Boggess, E. M----------Washington C. H.
Bowen, A. H----------Columbus.
Brish, W. N----------Shelby.
Brown, E. O. S----------Beaver.
Brown, H. M----------Hillsboro.
Brown, J. E----------Columbus.
Brush, E. C----------Zanesville.

Buckner, Jas. H.....Cincinnati.
Burnett, E.....Wetsel.
Burrows, S. S.....Columbus.
Butler, G. W.....Columbus.
Cable, Thos. B.....Pemberton.
Caldwell, J. L.....Waverly.
Caldwell, Wm.....Fremont.
Calinan, D. F., Jr.....Corning.
Campbell, A. B.....Cleveland.
Carroll, F. M.....Springfield.
Carson, F. D.....Benton.
Case, F. D.....Ashtabula.
Cass, Edw.....Dresden.
Chapman, W. C.....Toledo.
Chidester, C. W.....Delaware.
Chisholm, Horace.....Marion.
Clapp, H. T.....Cleveland.
Clark, C. F.....Columbus.
Clark, J. H.....Mechanicsburg.
Clouse, G. M.....Columbus.
Cole, A. P.....Chillicothe.
Coleman, N. R.....Columbus.
Collamore, G. A.....Toledo.
Collins, B. F.....Toronto.
Colville, G. H.....Harrisville.
Conklin, W. J.....Dayton.
Conn, Eli.....Akron.
Cook, G. F.....Oxford.
Cook, Jos. E.....Cleveland.
Cooper, A.....Columbus.
Cooperrider, C. A.....Columbus
Cope, Ellis C.....Cope.
Courtright, A. P.....Circleville.
Courtright, Geo.....Lithopolis.
Crossland, J. C.....Zanesville.
Culbertson, J. C.....Cincinnati.

Daland, Judson.....Philadelphia, Pa.
Dandridge, N. P.....Cincinnati.
Davidson, N. P .....Hilliard.
Davis, Ben.....New Carlisle.
DeBeck, David.....Cincinnati.
Denman, W. C.....Marion.
Dennis, W. H.....Burbank.
Deuschler, W. D .....Columbus.
Dine, C. L.....Minster.
Dixon, M. F.....Columbus.
Dorsey, J. F.....Dresden.
Duncan, Jas. A.....Toledo.
Dunham, John M.....Columbus.
Dutton, C. F.....Cleveland.
Eakins, John.....Patriot.
Edwards, R. C.....West Carlisle.
Ely, J. S.....Barnesville.
Eichberg, Jos.....Cincinnati.
Emerick, E. J.....Columbus.
Emmons, D. R.....North Lewisburg.
Entrekin, F. W.....Findlay.
Evans, A. E.....Columbus.
Evans, G. B.....Dayton.
Fackler, G. A.....Cincinnati.
Farnsworth, G. B.....Cleveland.
Fassig, J. M.....Zanesville.
Fella, F. J.....Toledo.
Finlay, W. H.....Xenia.
Flower, W. R.....Ashtabula.
Follett, A.....Granville.
Foshay, Max.....Cleveland.
Fowler, S. H.....Delaware.
Fowler, S. W.....Delaware.
Fox, Jos. F.....New Philadelphia.
Fraker, Harvey C.....Columbus.
Frame, J. C.....

Fullerton, E. B.----------Columbus.
Gahm, J. L.----------Jackson.
Getzloff, Bruno----------Wapakoneta.
Geyer, J. L.----------Norwich.
Gibbon, H. B.----------Tiffin.
Gilliam, E. M.----------Columbus.
Gilliam, D. T.----------Columbus.
Glenn, W. W.----------Hillsboro.
Good, Harmon----------Sulphur Grove.
Gordon, J. L., Jr.----------Columbus.
Gordon, P. A.----------Junction City.
Goss, C. W.----------Lancaster.
Goss, J. H.----------Lancaster.
Gray, F. C.----------Dayton.
Green, H. S.----------Cardington.
Grienamyer, P. S.----------Orrville.
Groves, J. E.----------Uhrichsville.
Guiss, W. H.----------Tiro.
Haldeman, J. S.----------Zanesville.
Haldermann, S. S.----------Portsmouth.
Hall, C. T.----------Mason.
Hall, R. B.----------Cincinnati.
Hamann, C. A.----------Cleveland.
Hamer, W. W.----------Bellefontaine.
Harbour, C. W. B.----------
Harding, B. F.----------Mansfield.
Harmon, J. D.----------Warren.
Harrison, E. B.----------Napoleon.
Hart, Chas. S.----------Marietta.
Hayes, J. D.----------Somerset.
Haynie, J. D.----------New Paris.
Heffner, G. W.----------Circleville.
Henderson, D. W.----------Marysville.
Henderson, R.----------Urbana.
Henry, R. H.----------Columbus.
Herrick, H. B.----------Cleveland.

Hewetson, A. H.....St. Clairsville.
Hewetson, H. L.....Uhrichsville.
Hinckley, H. D.....Cincinnati.
Hiner, S. B.....Lima.
Hitt, A. W.....Louisville, Ky.
Hobson, J. A.....Flushing.
Hoege, G. L.....Fostoria.
Hoff, J. W.....Pomeroy.
Hoge, W. D.....Portland Station.
Holcomb, L. S.....Pennville.
Holliday, W. W.....Cleveland.
Holman, A. W.....Circleville.
Holmes, W. W.....Columbus.
Holston, J. E. F.....Zanesville.
Hoover, T. C.....Columbus.
Hough, Chas. A.....Lebanon.
Howard, W. T., Jr.....Cleveland.
Howell, J. M.....Washington C. H.
Hubbard, Thomas.....Toledo.
Huber, Carl.....Ann Arbor, Mich.
Hughes, E. E.....Oak Hill.
Hughs, D. E.....Delaware.
Hulin, O. W.....Greenford.
Humiston, Wm. H.....Cleveland.
Hunter, J. S.....Piketon.
Hussey, M. F.....Sidney.
Hyatt, E. H.....Delaware
Ireland, S. A.....Washington C. H.
Ireland, W. E.....Washington C. H.
Jackson, T. W.....Akron.
Jacobs, M. M.....Hamilton.
Jacobs, W. C.....Akron.
Jenkins, M. J.....Plain City.
Johnson, O.....Worthington.
Johnston, Alice M.....Columbus.
Jones, H. S.....Columbus.

Kahn, Louis.....Columbus.
Kemp, Lucia.....Bucyrus.
Kennedy, T. C.....Shelbyville.
Kimmel, J. A.....Findlay
Kline, P. J.....Portsmouth.
Landon, C. P.....Columbus.
Larimore, F. C.....Mt. Vernon.
Lash, J. W.....Chillicothe.
Lawrence, F. F.....Columbus.
Lawrence, J. C.....Columbus.
LeFevre, Edw.....Sidney.
Lehman, C. W.....Eaton.
Lenhart, C. M.....Zanesville.
Leonard, B. B.....West Liberty.
Leonard, W. W.....Delaware.
Lightner, S. B.....Sabina.
Lindsay, J. A.....Salineville.
Lottridge, W. M.....Portsmouth.
Loving, S.....Columbus.
Lowman, J. H.....Cleveland.
Lusk, S. B.....Waynesfield.
McClellan, J. S.....Bellaire.
McClure, Jas.....Marietta.
McCollam, J. A.....Uhrichsville.
McCurdy, S. L.....Pittsburgh, Pa.
McDougal, J. G.....New Lexington.
McIntire, Wm.....Warrensburg.
McKim, F. E.....Marietta.
McMillen, D. H.....Orrville.
McMurray, A. B.....Marion.
McNeal, F. B.....Columbus.
McVety, A F.....Toledo.
Macready, J.....Monroe.
Maerker, A. E. H.....Napoleon.
Marshall, Geo. M.....Portsmouth.
Martin, Jas.....Sandusky.

May, J. B.....New Holland.
Means, W. J.....Columbus.
Melick, W. A.....Zanesville.
Millikin, Dan.....Hamilton.
Mills, C. H.....Toledo.
Mitchell, E. W.....Avondale.
Moore, D. L.....Columbus.
Moore, H. M. W.....Columbus.
Morehouse, G. W.....Sparta.
Morgan, Jno. F.....Jackson.
Morgan, R. J.....Van Wert.
Morris, Jos.....Columbus Grove.
Murphy, C. F.....Portsmouth.
Murphy, J. A.....Cincinnati.
Naylor, J. B.....Malta.
Neil, Alex.....Columbus.
Newton, C. Wm.....Toledo.
Norris, T. B.....Alton.
North, John.....Toledo.
Nungesser, J.....Cleveland.
Obitz, Nelson.....Columbus.
Ohlmacher, A. P.....Cleveland.
Oliver, J. C.....Cincinnati.
Patrick, O. H.....Ada.
Pennell, W. W.....Fredericktown.
Peter, Robt.....Toledo.
Petitt, R. R.....Dayton.
Philips, W. S.....Belle Center.
Platter, H. M.....Columbus.
Pratt, L. C.....Bellefontaine.
Price, F. K.....Dennison.
Probst, C. O.....Columbus.
Pumphrey, R. J.....Massillon.
Quinn, A. T.....Wilmington.
Rank, W. C.....Newark.
Rankin, T. W.....Columbus.

Rardin, J. S.....Portsmouth.
Ray, J. H.....Coalton.
Redron, I.....Williamsburg.
Redron, W. L.....Williamsburg.
Reed, R. H.....Columbus.
Reinhart, J. C.....Toledo.
Rheinfrank, W. H.....Perrysburg.
Richards, A.....New Lexington.
Richardson, A. B.....Columbus.
Ricketts, Edwin.....Cincinnati.
Ricketts, B. M.....Cincinnati.
Rodebaugh, H. A.....Marysville.
Rodgers, W. K.....Columbus.
Rouse, Wm. L.....Paintersville.
Rousch, Wm.....Spencerville.
Row, G. T.....Circleville.
Rowles, W. T.....Columbus.
Rudy, A. S.....Lima.
Sabin, Thos. M.....Warren.
Sager, Jos.....Celina.
Sampson, G. W.....Upper Sandusky.
Scatterday, W. F.....Columbus.
Schutzbach, J. C.....Strasburg.
Scott, X. C.....Cleveland.
Sharp, B. M.....Sidney.
Shields, Edw. H.....Cincinnati.
Skinner, P. D.....
Simpson, G. N.....Warren.
Sinnett, E.....Granville.
Slager, J. L.....Paulding.
Smith, D. M.....Newark.
Smith, J. M.....New Philadelphia.
Snodgrass, J.....Kenton.
Snyder, Chas.....London.
Snyder, D. J.....Scio.
Spence, J. A.....Pittsburgh, Pa.

Spiers, H. H.....Ravenna.
Spruce, J. A.....Pittsburgh, Pa.
Stancell, J. A.....Forest.
Stanley, E.....Sandusky.
Stein, G. S.....Columbus.
Stephenson, Y.....Georgetown.
Steward, S. H.....Columbus.
Stewart, J. O.....Cedarville.
Stewart, T. H.....Church Hill.
Stillman, F. L.....Columbus.
Stinson, C. H.....Newark.
Stockton, Geo.....Columbus.
Striker, Louis.....Cincinnati.
Talley, C. F.....Hyattville.
Tangeman, C. W.....Cincinnati.
Taylor, C. M.....Columbus.
Thomas, F. W.....Marion.
Thompson, F. E.....Marengo.
Thompson, J. A.....Cincinnati.
Todd, J. H.....Wooster.
Tower, B. M.....Conneaut.
Trimble, C. E.....Crestline.
Trout, J. Frances.....Lancaster.
Tuckerman, L. B.....Cleveland.
Uhler, H. L.....Marion.
Upson, H. S.....Cleveland.
Van Pelt, C. L.....Toledo.
Vorhes, B. C.....Lee.
Warner, C. J.....Congress.
Weeks, O. W.....Marion.
Welch, A. J.....Mt. Sterling.
Wells, W. S.....Marion.
Whittaker, H. W.....Columbus.
Whitten, W. F.....Columbus.
Wilcox, S. S.....Columbus.
Wilkerson, M.....Sabina.

Wilson, E. J.....Columbus.
Williams, B. O.....Martin's Ferry.
Williams, T. J.....Sunbury.
Williams, W. E.....Jackson.
Willson, C. H.....Idaho.
Wirt, W. E.....Cleveland.
Wood, J. S.....Collinwood.
Woods, G. W.....Columbus.
Woodbridge, J. E.....Youngstown.
Woodruff, E. W.....Jersey.
Woodruff, L.....Alton.
Woodworth, W. H.....Delaware.
Wright, J. H.....New Lexington.
Young, D. H.....Chicago.
Zenner, Phil.....Cincinnati.

DAVID NATHANIEL KINSMAN, M. D.

Dr. Kinsman, the retiring President of the Ohio State Medical Society, was born in Heath, Franklin County, Mass., May 3d, 1834. He belongs to one of the oldest of the New England families, his ancestors having come to this country in 1634, two hundred years prior to his birth. At the age of twenty-two he came to Ohio, and for some years was engaged as a teacher in the public schools at Circleville.

In 1863 he graduated at the Medical College of Ohio. In 1872 he was made Professor of Diseases of Women and Children in Starling Medical College, and served three years. In 1875 he was called to the chair of Practice of Medicine in the Columbus Medical College, which he held for seventeen consecutive years. He was also Dean of the Faculty.

A few years since he was tendered the chair of Pathology and Nervous Diseases in Starling Medical College, which position he still holds. He was appointed Health Officer of the City of Columbus in 1893. He is an ex-president of the Columbus Academy of Medicine, and has held various positions of honor and trust, both political and social, all of which he has discharged with eminent ability and satisfaction.

Doctor Kinsman is widely known as a writer and teacher. His knowledge of all that pertains to medicine and the collateral branches is almost encyclopedic. His intellectual acquirements, supplemented by elegance of diction and an impressive delivery, make him a platform speaker of rare excellence. He is also a model presiding officer, and it was his good fortune to hold the reins over the Ohio State Medical Society at the most notable meeting in its history—the semi-centennial, in Columbus, May, 1895. D. T. G.

In Memoriam.

HARLAN P. ALLEN, M. D.

Dr. Allen, of Columbus, one of the leading oculists and aurists of Ohio, died in Roosevelt Hospital, New York, on May 2d, 1895. He was born in Massachusetts in 1856; graduated at College of Physicians and Surgeons, New York, in 1879; was appointed to Charity Hospital (Blackwell's Island), serving eighteen months, after which he was transferred to Chambers St. Hospital, where he served six months. After the term of his service at the hospital expired, he became a student under Dr. Knapp, and with him worked continuously for a period of two years at the Eye and Ear Hospital of that city.

He came to Columbus in 1883, and in the twelve years devoted to the practice of his specialty built up a large and lucrative practice. He leaves a wife but no children. Dr. Allen was a member of the American Ophthalmological and Otological Societies, the American Medical Society, the Ohio State Medical Society, the Central Ohio Medical Society, the Columbus Academy of Medicine, of the latter of which bodies he was ex-president. The Columbus Academy of Medicine held a special meeting on May 4th, at which the following resolutions were adopted:

WHEREAS, Our former president and associate, Dr. Harlan P. Allen, while in the zenith of his usefulness, has been removed by death: Therefore, be it

Resolved, That this Academy has sustained an irreparable loss in the death of Dr. Allen, who has been one of its noblest and most energetic members—whose work as executive, in the preparation of papers, as well as in debate, was distinguished by clearness, good judgment and advanced thought.

Resolved, That the profession of medicine has lost one of its most scholarly and worthy representatives, who did much to preserve its fair name and advance its interests.

Resolved, That the community has lost a citizen who in his professional and social relations was guided by a character of high standard, and whose pure, dignified and unostentatious life won for him the respect and confidence of all with whom he came in contact.

Resolved, That these resolutions be made a part of the records of the Academy, and published in the *New York Medical Journal*, the *Columbus Medical Journal*, and that a copy be transmitted Mrs. Allen, with the profound sympathy of the members of the Academy.

T. W. R.

ISAAC NEWTON HIMES, M. D.

Dr. Isaac Newton Himes was born at Shippensburg, Cumberland Co., Pa., December 4, 1834. He died in Cleveland, April 1, 1895. His parents were George W. and Joanna (Sturgis) Himes, his father being a prominent and wealthy owner of coal interests. The Doctor received his literary training at the University of Pennsylvania and Jefferson College at Cannonsburg, Pa., graduating from the latter institution in 1853 with the degree of A. B., the degree of A. M. being conferred in 1856. He then entered the Medical

Department of the University of Pennsylvania and afterward the College of Physicians and Surgeons in New York City, receiving the degree of M. D. from the latter institution in 1856. In the spring of 1861 he commenced private practice in Chillicothe, Ohio.

In the fall of 1861 Dr. Himes received the appointment of assistant surgeon of the 3d O. V. I., and was shortly afterward commissioned surgeon of the same regiment, and served as one of the operators for the 11th Army Corps at Gettysburg, and in charge of the 11th Corps Hospital at the battle of Chancellorsville. He also served on Gen. Steinwehr's staff and was surgeon in charge of the 3d Division 20th Army Corps Hospital from Atlanta to Savannah, thus remaining in active service until near the close of the war. After the war closed, he spent two years in France and Germany in professional study and travel, and then traveled for several months in the United States, residing one year in San Francisco.

Dr. Himes settled in Cleveland in 1871 and engaged in practice. From 1871 to 1881 he was Professor of Physiology and Physiological and Pathological Histology in Cleveland Medical College. In '81 Clinical Surgery was added to his title. In '82, when the Cleveland Medical merged into Western Reserve, Dr. Himes was made Professor of Morbid Anatomy and Orthopædic Surgery, and from the session of '83-4 up to the time of his death he was Professor of Pathology. For many years Dr. Himes was also registrar and treasurer of the college with which he was connected, and for the last two years of his life was Dean of the Faculty. He was visiting physician to Cleveland City, afterward Lakeside Hospital; a member and ex-president of the Cuyahoga County Medical Society; of the Ohio State Medical Society; of the American Medical Association, and of the Society of the Medical Sciences, and president at the time of his

death. He was also a member of the Loyal Legion, composed of officers of the late war. He was a member of Trinity Church. In 1878 he was married to Mrs. Mary Vincent Read (daughter of John A. Vincent, a merchant of this city), who survives him.

Dr. Himes will be remembered by the local profession for his love of the study of medicine, for his high ideal of the profession and steadfast devotion to its interests, especially as they might be advanced by work in the medical societies. He was a faithful and valuable member, few so prompt, and none more deeply interested in the welfare of the organization. He always had something of value to present, and yet with the most unobtrusive modesty. Though not fluent in his delivery, his language, spoken or written, was scholarly and expressive, and his thought accurate and scientific. He never seemed to us to be as old as he was in years, which makes his death the more unlooked for. Perhaps it was as he himself said in a poem on "The Doctor's Path of Life," read at the meeting of the Alumni Association of the Cleveland Medical College, March 6, 1878:

> "Training of mind, expression, eye and tongue,
> Good deed and kindly word, thus keep us young;
> While Science, with illuminated page unrolled,
> Shows us the art to placidly grow old."

And surely he has been granted the wish he then expressed:

> "Might we, like Kirtland and good Delamater,
> Pass to repose at the full season's close,
> Their bodies resting, but whose souls arose
> To closer study of the works of the Creator."

A. R. B.

WILLIAM W. ELLSBERRY, M. D.

William W. Ellsberry, M. D., of Georgetown, O., died September 7th, 1894, of heart-disease, after an illness of almost a year. He was born at New Hope, Brown County, Ohio, December 18th, 1832. His education was acquired in the common schools, and in the office of his father, who was a distinguished physician of Brown County. He began the study of medicine at eighteen years of age. He attended one course of lectures at Starling Medical College, Columbus, Ohio, and afterward graduated at the Cincinnati College of Medicine and Surgery and also at the Medical College of Ohio. Being a fluent speaker and inclined to politics, at the age of thirty years he was elected to the office of county auditor. This office he filled three terms. In 1884 he was elected to Congress, and served his constituency faithfully and with distinction to himself. He declined a renomination on account of his health, and visited California in hope of regaining his former good health. He returned to Georgetown, Ohio, and engaged in the practice of medicine, in which he enjoyed an unusually large consultation practice. He was a wise, safe and conscientious counselor. He enjoyed the respect and confidence of all his neighbor physicians who so often called on him for advice, and always had a word of cheer for and was ready to aid the worthy young physician. He was a diligent reader of the best journals, and was prompt to purchase the latest works on the various branches of medicine, and kept well-advised on all new theories and doctrines in advanced medicine. He was an active worker in the Brown County Medical Society, a faithful attendant upon the meetings of the State Society and American Medical Association.

The local profession have suffered a bereavement in his death, and the State Society has lost one of its most talented and influential members.

VIRGIL HOMER GUE, M. D.

Dr. Virgil Homer Gue was born in Ulster County, New York, January 5, 1839, and died in New Lexington, O., October 19, 1894. He was engaged in the practice of medicine in Ohio for seventeen years, his last ten years being spent in New Lexington, having come to this place from Baird's Furnace.

At a meeting of the Perry County Medical Society, the following was adopted as a brief and sincere expression of the regard in which he was held by his colleagues:

Dr. V. H. Gue was esteemed among his professional brethren for his professional honor and sense of fairness. He was a cherished and true friend. His loving kindness to those who sought his services will never be forgotten. His generosity was bounded by his means. He was courteous to all at all times: Therefore, be it

Resolved, That by his death the medical profession of Perry County has lost one of its most active and useful members, and the medical society one of its most earnest workers in promoting the interests and progress of the profession.

DAVID B. WOODS, M. D.

Dr. Woods, of Warren, Ohio, was born near Youngstown in 1816, and died July 7, 1894, in the seventy-eighth year of his age. He was educated at Allegheny College, Meadville, completing his medical education in Cincinnati in 1840.

His early professional work was toil of the hardest kind. Patients were scarce and poor at that. His active and broad mind needed employment, and he edited one of the county papers until his professional duties absorbed all of his time. Industry was one of his dominant characteristics, and his love of the intellectual made him a lifelong student. In the collateral medical

sciences he was well informed, and he had the power of keen logic and sound philosophical reasoning.

The medical world "revolved" exceedingly rapid through certain periods covering his life-work of six decades. Brussoir's theory of irritation and the Brunonian philosophy stirred the medical thought equally with Koch of this decade. Cellular pathology was received and digested. From all these, germs of good thought were sifted.

Long before chloroform was available to the profession he and his druggist manufactured sufficient for his practice, and he performed the first surgical operation in the West under anesthesia. This was in 1846. This gave him deserved fame. To be able to amputate a leg without pain, and that too with an anesthetic of his own manufacture, could not but inspire a profound admiration from colleagues, and gave him a leading reputation as a progressive surgeon which he never lost. His genius in medicine was equally active in obstetrics, and his counsel in general medicine was eagerly sought for.

The diligence with which such a broad-minded man pursued his studies is the more marvelous when we consider the large proportion of the time spent on the road. Driving from farmhouse to farmhouse, and from village to hamlet, he constantly read choice literature, thus keeping his mind fresh and active in the midst of the drudgery of country practice.

In 1876 he was nominated for Congress and defeated by James A. Garfield. He served as director of the Newburg, Athens and Columbus Asylums.

For threescore years he molded the thoughts and sentiments of the community in which he resided, and gave them the best professional advice of the age. To such men medicine is indebted for the elevated standing which it holds among the practical sciences and as an honorable vocation among men. E. W. B.

DR. JULIUS WOLFENSTEIN.

Dr. Julius Wolfenstein, a well-known and highly respected young physician of Cleveland, died August 12, at three o'clock, at the Jewish Orphans' Asylum on Woodland avenue. Deceased was the son of Dr. Samuel Wolfenstein, the superintendent of the orphans' asylum. He was twenty-eight years of age, having been born on June 26, 1866, at Intersburg, Germany. He came to this country with his parents in 1870, locating in St. Louis, and came to Cleveland sixteen years ago. He graduated from the public schools and high school of Cleveland and took a course in the Western Reserve Medical College, where he graduated. He then spent two years abroad, studying medicine in Vienna, Paris and other large cities of Europe, returning to this city in August, 1888. Since then he has been practicing medicine and surgery, and latterly making an exclusive specialty of treating disease of the ear, nose and throat. During his brief professional career he established a reputation as a skilled practitioner and retained the respect and admiration of a large circle of colleagues for sterling integrity and honorable conduct. S.

PRESIDENT'S ADDRESS.

D. N. KINSMAN, M. D., COLUMBUS, O.

Members of the Ohio State Medical Society:

Allow me to thank you for the high honor which I enjoy by your favor this day.

This is our semi-centennial—our jubilee year. In spite of financial depression and social disorder, not a year in the history of this Society has been more fruitful to the medical profession than this, and when the final inventory shall have been made no half-century will show more advance than that now closing.

All fields—professional, industrial and mechanical—have been cultivated with a zeal before unknown. Criticism of old experience and discoveries of new facts are giving us new science in all departments.

The authority of Galen and Dioscorides reigned without question for fifteen centuries. A man to-day is happy if he can be quoted as authority for half a year.

An intensely critical spirit is characteristic of our time. All departments—science, philosophy, law, medicine and theology—feel its influence. Theories, old and new, are tested by the fierce light of a "higher criticism." No observation is accepted as true until it has vindicated its right to be after the severest trials.

In all ages no half-century whose history we know has witnessed so many new discoveries nor so many new

applications of old. While the general movement of medicine has been one of progress, a few things have marked its course strongly.

In 1845, the natal year of this Society, Sims invented the duck-bill speculum, which was the higher evolution of a Britannia spoon-handle, to which form there is now an atavistic tendency to return. The application of the silver wire as a suture made him master of a class of operations till then rarely successful. And better principles governing the use of the obstetric forceps have rendered vesico-vaginal fistulas less common.

In 1844 Horace Wells used nitrous oxide in the extraction of teeth, which was probably the first case on record of surgical anesthesia.

On September 30, 1846, in the Massachusetts General Hospital, Morton used ether as a surgical anesthetic. December 19, 1846, Boots, of London, used ether in the extraction of a tooth. On the 27th of the same month, Liston, the most habile surgeon of any time, made a thigh amputation under ether.

In February, 1847, Simpson applied chloroform to obstetrical practice. Those who have read the obstetrics of Charles D. Meigs, then in his glory as the brilliant professor of Jefferson, will remember how vigorously he opposed Simpson's use of anesthesia in obstetrics because it abrogated the primal curse for sin.

Few can realize the change in the aspect of a surgical amphitheater at that epoch. Straps, buckles and confining apparatus for immobilizing the patient disappeared. Shrieks and groans of the patient no longer appalled the listener. And later Esmarch's bandage and Péan's forceps rendered operations bloodless. Surgery had entered upon a new stage, in which care and deliberation took the place of manual dexterity. Hope entered minds till then tenanted by despair, and patients welcomed surgery as an angel in disguise.

In 1851 Helmholtz invented the ophthalmoscope, and illumined a hitherto unexplored region. The applications of this instrument have not yet been exhausted in the diagnosis of diseases of the eye and brain.

In our late civil war hecatombs of lives were destroyed by hospital gangrene, septicemia and erysipelas. These diseases spread through our army hospitals. The mode of infection was unknown, because the cause was unknown.

In 1864 Davaine showed that putrefactive processes were due to bacteria, and that they and not the fluid in which they lived caused septicemia.

In 1858 Pasteur began his studies on spontaneous generation. He showed that wine and beer spoiled because they became infected with bacteria. He found the pebrine of silkworms was caused by infection. He studied chicken-cholera and anthrax, and rendered animals immune to these infections by attenuated viruses. Hydrophobia, a most relentless infection, which never spared man nor beast, became submissive to the wand of this magician. Nothing tells the splendid triumph of science better than the record of his Institute for 1893. Out of 432 persons bitten by animals shown by bacteriological analyses to have hydrophobia, less than 1 per cent. perished after having been treated by attenuated virus.

In 1878, after twenty years' study, Pasteur announced his results to the Paris Academy of Medicine in fifteen magisterial propositions, which overthrew the doctrine of spontaneous generation and furnished a foundation on which the pathology of infectious diseases now securely rests.

We have learned many things about bacteria in these latter days. Seeds planted in sterile soils do not germinate under influence of sunlight and moisture, but must in some way feel the mysterious touch of bacteria before they enter upon the wondrous cycle which we call growth.

Fields become sterile. Clover refuses to seed and beans fail to store albumen in their cotyledons unless their roots show the globosites which mark bacterial infection. So the bacteria have their good as well as their evil *rôle.*

Fifty years ago—yea, up to within twenty years—infection was the rule in wounds, and this was solicited by salves and powders and poultices. The appearance of pus was eagerly expected, and it promptly put in an appearance, and our text-books described as many kinds of pus, laudable and otherwise, as of diarrheas.

Suppuration is the sign of infection, and is the index of a deadly struggle between the phagocytes and the invading hosts of bacteria. Phagocytes slain on the battle-field form pus. No terms of objurgation are sufficient to express the feelings of a modern surgeon in the presence of such a misfortune.

The following dialogue between the old- and new-time surgeon and their dressers but faintly expresses the situation:

Scene in wards of hospital.

O. S.: "How are the amputations doing to-day?"

Dresser: "O, very well; they are suppurating finely."

O. S.: "All right, then continue the dressing."

Same hospital to-day.

N. S.: "How are the amputations doing to-day?"

Dresser: "I am sorry to say, they are suppurating."

N. S.: "Hell! You don't tell me that!"

When infection occurs in a puerperal woman nowadays modern physicians have no hesitation in assuming that a dirty doctor or a filthy nurse has been an active factor in the case

Following the lead of the bacteriologist, antisepsis and asepsis have banished infection from hospitals which have been occupied scores of years, which shows infection does not thrive on naked walls, but lives and moves and has its being on things which live and move

and have their being within the walls. Lister, Keith, Tait, and the host of modern surgeons have successfully applied these principles in the practice of the surgery of the present, until we old fellows stand aghast at the mutilations which the human frame can suffer and have an "uneventful recovery." Indeed, I have feared that surgery has become so near being a perfect art that exploratory incisions have taken the place of that higher form of analytical reasoning which was the pride of our teachers of thirty years ago. This is a twice-told tale to my surgical hearers.

What shall we say of the conquests of the bacteriologists in the field of internal pathology?

Typhoid fever has a sole cause in Eberth's bacillus. Cholera morbus, cholera infantum and most of our diarrheas depend upon bacterial infection of the intestinal canal and the absorption of their toxins.

Although the morphology of the comma bacillus is yet unsettled, there can be no doubt that it is the cause of cholera Asiatica. The bubo plague, the giant scourge of humanity in the fourteenth and fifteenth centuries, has yielded its secret to Kitasato, a native of Japan, whose walls were battered down within the last fifty years by the guns of an American ship. It let the light of modern civilization into that fair country, and let out one of the most brilliant investigators of our time.

Malarial diseases have yielded their secret to Lavaran, whose researches have been confirmed to the utmost detail by Sternberg and Daland. To this list we may add diphtheria, tetanus, pneumonia and cerebro-spinal meningitis and tuberculosis.

These studies have opened a still more interesting field—immunity. The work which has been accomplished in producing immunity in man and the lower animals leads us to expect still more gratifying results in the field of human pathology. Vaccination, which

has been practiced now for more than a century, is the empirical application of those principles which bacteriology has scientifically demonstrated, and if vaccination was thoroughly carried out, in ten years' time smallpox would be a thing of the past in all civilized nations.

The experiments of Feran upon cholera in Spain have never been appreciated by the profession at their true value. He established, by a series of inoculations unparalleled in number, that man can be rendered immune to cholera.

The results of the treatment by thousands at the various institutes throughout the world, of men bitten by rabid animals, leaves no room for doubt that immunity to hydrophobia can be produced.

If the results expected from the use of tuberculin in tuberculosis have not been realized, the fact remains that it is the most successful treatment yet devised in superficial tubercular lesions. The difficulty of producing immunity to any infection seems to increase in the ratio of its chronicity. So far, at least, those diseases against which the system reacts promptly have been those in which immunity has been most readily secured.

The crowning triumph of our period is the successful application of serum-therapy to diphtheria. It is too early to fully appreciate this discovery, but it promises much.

It is obvious that a thoroughly-equipped bacteriologist has become the necessary clinical assistant of the physician.

Hypodermatic medication was invented in 1845, by Rynd, of Dublin. From 1853 to 1855 Wood, of Edinburgh, developed this method and invented the syringe which bears his name. Originally used for the introduction of morphine for the relief of pain, the instru-

ment is now used in the treatment of goitres, syphilis, and in serum-therapy.

In 1863 I took the first hypodermic syringe to the town of Circleville. The lancet has practically disappeared as a therapeutic measure, and most of you have never seen the operation, and the tales recorded by the mighty bleeders of the past to the young physicians sound like those of Munchausen.

The only practical work on the physiological action of remedies and their antagonisms has been done during the last two decades.

Rational therapeutics is now possible because the selective action of a large number of drugs is demonstrated. Chloral hydrate, discovered in 1832, was used in therapeutics by Leibreich first in 1869. Aldehyde, chloralamid, sulphonal and trional, more recent discoveries, have extended our list of hypnotics.

Cocaine, discovered by Neimann in 1859, was given in the treatment of sore-throat, in 1870, by Gazeau. In 1884 Koller, then of Vienna, introduced this agent into general therapeutics.

The coal-tar preparations, extensively used as analgesics and as substitutes for opium and for directly controlling the fever process, are all contributions to therapeutics during the last twenty years.

Serum-therapy and inoculations with bacteria or their products in the cure or prevention of diseases are the latest additions to our therapeutic means. And from what has already been accomplished in this field greater results may be expected in the future. It is not too much to hope that variola, typhoid fever and other diseases will be successfully treated by these methods.

In 1845 a gross humoralism was the prevailing doctrine in pathology. In 1846 Wharton Jones first observed the amœboid movement of the leucocyte. In 1858 Virchow delivered his epoch-making lectures on

cellular pathology, and overthrew the prevailing doctrine. The studies of Ehrlich and others have classified the leucocytes and shown how active they are in pathological processes.

Metchnikoff, by his studies upon comparative inflammation, has shown that all animals, even the lowest, react against traumatism and infection in a uniform manner, and that modifications in structure account for differences in its manifestations. Inflammation is a conservative process. Its one constant and uniform feature in plants and animals, high or low, is phagocytosis. Biology has shown that all life is one. Man shows like a headland in the sea of life, but he bears in his frame the reminiscences of his humble origin, and if he is to be successfully studied we must begin with his poor relations.

Specialism is a growth of our historic period. Ophthalmology, otology, laryngology, dermatology, pedology, gynecology, are a few of the "ologies" which indicate how broad the field of medicine is. The fairest trophies of our art have been won by workers in these restricted fields.

The half has not been told, but even this imperfect *résumé* shows what magnificent progress has been made.

Since our civil war State medicine has assumed a great importance. Ohio was one of the latest States to organize State and local boards of health. In future hygiene and prophylaxis of diseases will play a more important part than they have hitherto done. Indeed, some enthusiastic public-health authorities declare the medicine of the future will be surgery and preventive medicine.

We should coöperate with our Board of Health in securing the enactment of a law which will secure a complete record of vital statistics in our State.

There is no question in my mind but that legislation is needed on the subject of inebriety. Prohibition and

license do not prevent inebriety. Criminality is an inheritance depending in not a few cases upon low organization. Alcohol, opium and chloral induce disease in their victims and their children. Insanity and pauperism in no small proportion depend upon indulgence in them.

We have provided hospitals for the insane and the imbecile and epileptic. We need legal machinery by which the drunkard, the morphine and chloral *habitué* can be committed to hospitals and restrained until they can be cured and returned to society and their families, reformed. Addiction to any of these habits is a disease, and should be so treated. The cost of such maintenance and treatment would be less than we pay now for the conviction and punishment of criminals whose downfall is due to drink, whose punishment now has no reformatory influence whatever.

Members of this Society have taken the initiative in the establishment of our hospitals for the blind, the insane, the imbecile and the epileptic. I wish some action could be taken by this Society upon this subject.

The victims of morphine, cocaine and chloral addiction are increasing every year. Blighted lives and ruined homes in every community show how widely extended the evil is.

There is legislation upon our books on this subject, but from some investigation I am sure the law is largely ignored. The sale of morphine is practically unrestricted. The provisions of the law as to red labels and original packages and records are not observed. In a word, the law is a dead letter.

In my opinion, no evil, but incalculable good, would result by restricting the sale of these drugs to physicians' prescriptions and original packages, with a preservation of the record feature except when sold to physicians and the trade.

Ohio is the paradise of quacks and irregular practitioners of medicine of all sizes and colors. The druggist and veterinarian have secured legislation regulating the practice of their professions in Ohio. Before an attorney can practice law he must be examined by a board of attorneys appointed under the statutes of Ohio. Before a person can teach in the lowest grade of schools in the State an examination as to qualifications is necessary. And yet persons engage in the practice of medicine and assume the care of the sick who need not have qualifications such as are demanded of those who dispense a dose of salts or doctor a horse.

The matter of medical legislation was referred to a special committee by resolution, at your last meeting. I would also suggest that the same committee be instructed to report what legislation is necessary upon the subject of tuberculosis in our food-animals, and also whether measles should not be added to the list of diseases to be reported to boards of health.

Finally, the course of medicine in Ohio during the last half-century has been progressive. Our schools have been improving their equipment, their courses have been extended, and the physicians who graduate to-day are of a higher grade in professional acquirements when they undertake their work than ever before.

Our students are found in the medical universities of Europe and in our own post-graduate courses in yearly increasing numbers. When they return home they stimulate all their fellow-physicians to an increased effort to be worthy of their high vocation.

The meetings of this Society fifty years ago, or those of its predecessor eighteen years earlier, were no holiday affairs. They demanded self-denial, exposure and fatigue, for most of the members had to make the journey on horseback, which in some instances lasted weeks. But to men whose normal days and nights were passed in the

saddle, who feared neither frost nor storm, swollen streams nor bottomless roads when the sufferer called, the occasion was one of pleasure.

There were giants in those days, and the names on the early rosters of this Society would grace any page in human history. They were dogmatic, self-made men. Their consultations were never too unanimous, and were often characterized by debates more bitter and acrimonious than those of a political campaign.

Necessity made them self-reliant, and compelled them to meet every emergency single-handed. They practiced medicine, obstetrics, surgery and dentistry with equal skill. They had the respect, love and confidence of their patrons, and when the old doctor died the people mourned.

I thank God it has been my lot to live at the close of the nineteenth century. It is the golden age of the world. There has been none like it in human history. When our labors cease we can depart in peace, "For our eyes have seen the glory of the coming of the Lord."

THE ANTITOXIN TREATMENT OF DIPHTHERIA.

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In an address like the present, time does not permit of a review of the rapidly accumulating literature on immunity, and we must limit ourselves to the consideration only of that portion of the interesting work done on this subject which bears directly upon the application of the blood-serum therapy to disease in the human.

As far as animals are concerned, artificial immunity has been produced by various workers against the micro-organisms of chicken-cholera (Pasteur), anthrax (Ogata and Josahara and others), erysipelas, malignant œdema, hog-cholera, typhoid fever, hemorrhagic septicemia, vibrionic septicemia, Asiatic cholera (Haffkine), diphtheria (Behring and others), tetanus (Behring and Kitasato, Roux), pneumococcus infection (the Klemperers), pyocyaneous infection (Charin and others), proteus infection, and infection with the bacillus coli communis, the streptococcus and the staphylococcus.

Of the diseases caused by the micro-organisms above mentioned, artificial immunity has been produced in human beings by the injection of the blood-serum or body-fluids of animals artificially immunized against

rabies, Asiatic cholera, tetanus, diphtheria and streptococcus infection.

In 1890 Behring established the fact that the blood-serum of an animal immunized against diphtheria had the property not only of producing immunity for this disease in other animals, but could also cure, or prevent death, in other animals when injected with virulent cultures of diphtheria bacilli. Behring and Kitasato later established the same facts for tetanus and tetanus poison.

In 1891 Ehrlich produced immunity in animals against the toxalbumins of the vegetable poisons ricin and abrin. These poisons are very powerful in their action, and, as has been lately shown by Flexner, cause, like the poison of diphtheria, typhoid fever and pneumonia, extensive necrosis of certain organs, especially the liver, kidneys, heart, spleen, and lymphatic glands.

Recently (1894) Calmette has not only rendered animals immune against four varieties of powerful snake-poisons, but has been able to cure them by the injection of the blood-serum of immunized animals even after the toxic action of the poisons was marked.

Since 1890, Aronson, Behring and his collaborators, especially Ehrlich, Boehr, Kossel and Wassermann in Germany, and Roux and his pupils in Paris, have been actively engaged in the study of the production of artificial immunity against diphtheria. For the production of immunity against this disease, numerous methods have been employed. Among other methods, the injection of small amounts of sterilized bouillon cultures of virulent diphtheria bacilli, bouillon cultures the virulence of which was artificially modified by heat and various chemical agents, such as the trichloride of iodine, the alkaline hypochlorites, etc., diphtheria bacilli grown in the extract of the thymus gland, and finally the inoculation of small doses of virulent diph-

theria bacilli, have all been used. Behring and Roux have in their latest work resorted entirely to the injection of the germ-free toxin of the diphtheria bacillus. Aronson prefers the injection of old cultures of virulent diphtheria bacilli.

The toxin of diphtheria, discovered by Roux and Yersin in 1888, is obtained by cultivating the bacillus in plain bouillon or in bouillon to which grape-sugar has been added, for from three to six or more weeks. For this purpose bacilli of a high grade of virulence are used, and a powerful toxin is thus obtained. Roux finds that if the culture is supplied with an abundance of moist air, a more virulent toxin can be obtained in a shorter time than when the older methods are employed. Not infrequently it has been found that diphtheria bacilli from severe cases of human diphtheria will give a toxin of only a low degree of virulence. After the organisms have grown for the time mentioned and the toxins have been proved by injection into animals to be virulent, the diphtheria bacilli in the cultures are killed by treating with carbolic acid 0.5 per cent., or trikresol 0.3 per cent., or with formalin. Twenty-four hours or so after the addition of one of these agents, the bacilli are certainly dead. The bacilli are then separated out by simple decantation, or, better, by filtration through porcelain. The germ-free filtrate contains the toxin. The exact strength of this toxin is ascertained by injecting it into guinea-pigs. Roux's standard toxin kills a 500-gramme guinea-pig in forty-eight hours in a dose of 0.1 c. c. Before the immunizing experiments are undertaken it is necessary to know the potency of the toxin employed. This established, Roux prefers for the first injections to lower the virulence of the toxin by the addition of one-third its volume of iodine. Behring prefers the injection of minute doses of the strong toxin, while Brieger and Wasser-

mann use cultures grown in thymus bouillon and heated to 65° or 70° C. for fifteen minutes. Aronson now uses small doses of virulent bouillon cultures to which 0.3 per cent. trikresol has been added.

In the first attempts at the production of immunity for the production of antitoxin, guinea-pigs and rabbits were used. This was a very delicate operation, as it was difficult to keep within the range of tolerance, so sensitive are these animals to the poison. It was soon found that better and stronger antitoxin could be obtained from larger animals. For this purpose dogs (Aronson), sheep, goats, cows, asses, and finally horses, have been used. Young and healthy horses give the best antitoxin. They withstand the toxin better, and a large amount of blood can be drawn off without injuring the animal.

Small doses are given at first, and then the amount of toxin is gradually increased, until at the end of from three to six or eight months enormous doses can be given. The injections are usually given into the shoulder. After the first few injections there is usually a considerable amount of swelling and œdema, with sometimes the formation of a hard, knotty mass at the point of injection. With this there is a decided general reaction, as is shown by a rise in temperature, with loss of appetite and body-weight. Often the animal, when well advanced towards immunity, will show decided prostration after an injection. Roux has pointed out that the susceptibility to the toxin is increased during the later months of pregnancy.

Starting with a dose of 0.5 c. c. of the pure toxin, and giving the injections at intervals of from three to eight days, at the end of from three to four months a dose of 250 c. c. is well borne. If the blood-serum is tested now on animals inoculated with diphtheria bacilli or diphtheria toxin, preferably the latter, usually its anti-

toxic power is about 1 to 50,000. With care and time the immunization may be carried to a degree high enough to furnish an antitoxin with a value of 1 to 100,000, or even more. Intravenous injections of the toxin furnish an antitoxin of higher grade than subcutaneous injections. Roux has clearly brought out the fact that small, frequently repeated doses of toxin furnish an antitoxin of a much higher immunity grade than large doses given at longer intervals. The rapid introduction of toxin in large doses gives an antitoxin of a comparatively low grade. High grades of immunity are not obtained for horses under from four to six months.

When the animal has reached the required degree of immunity, one of the jugular veins is tapped with a trocar and blood drawn off under antiseptic precautions to the extent of several liters. The blood is allowed to stand in vessels in an ice-chest until the serum separates. This is pipetted off, and carbolic acid or trikresol added for preservation. If carbolic acid is used, enough is added to make a 0.5 per cent. solution. Trikresol in about one-half this strength is sufficient. Roux adds camphor for preservation. It has been found that if the serum is allowed to stand some weeks before using, it is less likely to cause disagreeable after-effects, such as urticaria and joint and glandular swellings.

The antitoxic serum may be concentrated by desiccation *in vacuo*, and can then be preserved for a long time. Aronson has been able to separate the active antitoxic principle by a long process. This he claims is thirty times stronger than his highest grade serum. Ehrlich first found antitoxin in the milk of immunized animals.

COMPUTATION OF ANTITOXIC VALUES.

Behring takes as a standard an antitoxin of which 0.1 c. c. will neutralize ten times the minimal lethal dose

of diphtheria toxin. This he styles normal "heilserum," and one cubic centimeter of this is reckoned as one antitoxin unit. The minimal lethal dose of any diphtheria toxin is the smallest dose of this toxin that will kill a 300-gramme guinea-pig inside of forty-eight hours. In determining the value of any given antitoxin, then, in "heilserum" units, it is first necessary to determine the amount of this antitoxin required to neutralize ten times the minimal lethal dose. For instance, several animals are inoculated with ten times the minimal lethal dose, the animals at the same time receiving varying amounts of the antitoxin to be tested. The guinea-pig that bears this toxin without serious illness with the smallest amount of antitoxin shows the true value of the given antitoxin. Thus, if a pig is given the above amount of toxin and 0.001 c. c. of antitoxin, it has received only one hundredth as much antitoxin as would have been required had the antitoxin been of the normal strength. Hence this special antitoxin would be one hundred times stronger than the normal "heilserum," and so would contain one hundred antitoxin units to one cubic centimeter.

The method used by Roux is based on weight. Thus, the quantity of a virulent diphtheria culture which will kill a guinea-pig of a given weight is determined. Then the quantity of antitoxin necessary to prevent serious illness in a guinea-pig inoculated with the determined amount of the diphtheria culture is found. Thus if the amount of antitoxin required to save such a guinea-pig is one fiftieth of a cubic centimeter, and the animal weighs three hundred grammes, the strength of the antitoxin would be said to be 1 to 15,000—that is, one cubic centimeter of this antitoxin would cure 15,000 grammes of guinea-pig inoculated with a fatal dose of diphtheria bacilli. The method of Behring is to be preferred as being more accurate.

MODE OF PRODUCTION OF ANTITOXIN IN THE BODY.

Numerous explanations have been offered for the modes of action in the production of antitoxin in the body and for the action of antitoxin on the toxin. The weight of evidence is in favor of the supposition that the antitoxin is formed in the body not directly from the toxin, but that the body-cells, stimulated by the action of the toxin, form the antitoxin. Our conceptions concerning the production of immunity have changed very much during the last few years. The antitoxic agent cannot be looked upon as a distinct chemical antidote against the toxin.

According to Büchner's idea, the natural resistance possessed by the animal body is due to the alexins, which, according to the experiments of Kossel, Vaughan, Hankin and Büchner, are the products of the phagocytes. This resistance due to the alexins is to be looked upon as general — applying to all infections — and in no way related to artificially produced specific immunity, following a given infectious process, or due to the production and action of a specific antitoxin. Thus on account of our strong normal resistance, due to our alexins, many of us, though exposed, resist diphtheria. But those recovering from diphtheria, or animals artificially rendered immune against the disease, develop a specific antitoxic body which is capable of giving immunity to other individuals and of curing the disease. Büchner thinks that the alexins are formed by the phagocytes. He further thinks that the specific antitoxins, those of diphtheria, tetanus, etc., for instance, are specific bacterial products, acted on in some unknown manner by the body-cells; and that the natural resistance can never approach the height of specific immunity.

While the alexins are bactericidal in their action, the antitoxins are not. The blood-serum of rabbits immunized against hog-cholera and pneumonia, and of

guinea-pigs immunized against cholera, does not show any antitoxic action, but protects against the micro-organism and not against the toxin. Metschnikoff explains this by assuming that the serum stimulates the phagocytes to enclose and digest the bacteria. The blood-serum of animals immune to one disease may act as a cell-stimulant against another disease. Roux holds that the specific antitoxins are formed out of the toxins in the body. The similar properties of the toxins and the antitoxins, as regards physical and chemical agents, seem to favor this view.

Roux has found that the antitoxin formed in an animal does not stand in proportion to the amount of toxin injected, for if an immunized animal is bled, the formation of antitoxin still goes on, although no more toxin is given. He and Vaillard found also that if two animals were given the same amount of toxin in a given time, one receiving small doses at short intervals and the other large doses at longer intervals, the blood-serum of the first animal possessed many times the antitoxic value of that of the second. The manner in which the toxin is given is of importance, and the amount of antitoxin produced is not in proportion to the amount of toxin introduced.

Roux thinks the antitoxin is not a distinct chemical antidote to the toxin, for if one part tetanus antitoxin and nine hundred parts tetanus toxin are mixed and introduced into fresh guinea-pigs, two out of ten will have tetanus, so there must be some free poison in the mixture. If guinea-pigs were given a preventive injection of tetanus antitoxin and then a dose of tetanus toxin fatal for unprotected animals, none died; but if some of these animals were inoculated with the products of some other bacteria, they acquired tetanus, so there must remain free toxin. Calmette and others have found that although venom antitoxin acts on venom as the tetanus

antitoxin acts on the tetanus toxin in animals, if the two are mixed in a test-tube and heated to 70° C. the mixture again becomes toxic. So it would appear that the toxins and the antitoxins remain intact side by side. All these facts point towards the explanation that the antitoxins act as cell-stimulants against toxins.

According to Roux the action of the antitoxins is not altogether specific, as has been held by Behring. Calmette has found that tetanus antitoxin will protect animals against venom poisoning, but that the venom antitoxin has no effect on the tetanus poison. He also found that the serum of an animal immunized against rabies would protect against snake poison. It was found that the antivenom serum was active against abrin, and that abrin antitoxin had some effect on venom.

From these facts Roux thinks that all these antitoxins produce their effects by acting rather upon the body-cells than upon each other. Vaughan thinks that the antitoxin is formed by the body-cells under the stimulation of the toxin. Behring holds that the blood-serum therapy is a specific one, and that each antitoxin is active against only one disease, and that each specific antitoxin is produced by the living cells of the body under the influence of the toxin. Behring looks forward, however, to the making of antitoxins outside of the body.

THE INFLUENCE OF THE DIPHTHERIA ANTITOXIN ON THE MORTALITY.

From the beginning of the use of antitoxin in the treatment of diphtheria, there has been a marked lowering of the death-rate. Thus the German hospital statistics, with their mortality of from 35 to 65 per cent., showed under the influence of the new remedy a decrease to from 11 to 25 per cent. Kossel reported 233 cases with a mortality of 23 per cent. Kotz reported 128 cases in

Baginsky's wards with a mortality of 13.2 per cent. Virchow gave the treatment the weight of his authority when he reported 303 cases treated with antitoxin with a mortality of only 13.2 per cent., and 230 cases treated without antitoxin with a mortality of 47.8 per cent. In Roux's first series of 448 cases there was a mortality of 24.30 per cent., while at the same time the mortality from cases not treated with antitoxin in the Hospital Trousseau was 60 per cent. Later Roux's mortality has fallen to below 10 per cent. In Prag a series of cases was treated with a mortality of only 11 per cent. Weiderhofer, in Vienna, treated 100 severe cases with a mortality of 24 per cent.

Foster, of Washington (*Medical News*, February 2, 1895), has gone to the trouble of tabulating the comparative results of diphtheria cases treated with antitoxin and by ordinary methods. He found that in 2,740 cases —selected and unselected, collected from the literature— treated with antitoxin, 509 died, a mortality of 18.54 per cent. Of 4,445 cases—selected and unselected, and including, as did the others, cases upon which tracheotomy and intubation were done—not treated with antitoxin, 2,017 died, a mortality of 45.36 per cent.

Probably the most interesting series of cases reported in America is that of Biggs, in which 255 cases of diphtheria were treated in the Willard Parker Hospital and in the tenement-houses of New York. There were in these 255 cases 40 deaths, or a mortality of 15.69 per cent. If 15 cases in which death took place in less than twelve hours after the serum was administered are deducted, the mortality was only 10.4 per cent. During the same period, according to the statistics of the Health Department, the mortality from diphtheria in New York was from 25 to 35 per cent.

At the recent German Congress of Internal Medicine held at Munich, Heilbrun and Baginsky of Berlin, and

Weiderhofer of Vienna, among others endorse the serum-therapy and note striking lowering of the mortality following its use.

The experience of the writer in the recent Ashtabula epidemic was gratifying. In 40 cases treated with antitoxin there was a mortality of 7.5 per cent., while of 82 non-selected cases occurring during the same epidemic treated by ordinary means the mortality was 27 per cent.

Sivestre and Meslay of Paris have just published the results of their experience in 150 children with diphtheria, treated with Roux's antitoxin, with a mortality of 10 per cent.

The experiences of individual observers might be multiplied almost indefinitely. The difference in the results obtained, according to the day upon which treatment is begun, first emphasized by Kossel, is striking. It is, however, what, *a priori*, one would expect. In Kossel's 233 cases, of those treated on the first day of illness 100 per cent. recovered; on the second day, 97 per cent.; on the third day, 87 per cent.; on the fourth day, 77 per cent.; on the fifth day, 60 per cent.; on the sixth day, 47 per cent.; and between the seventh and fourteenth days, 51 per cent. The accumulated experience since Kossel's publication fully bears out his figures. For instance, Foster analyzed 2,740 cases, and of those treated on the first day of the disease none died; on the second day, the mortality is 2.83 per cent.; on the third day, 9.99 per cent.; on the fourth day, 20 per cent.; on the fifth day, 33.33 per cent.; after the fifth day, 41.38 per cent. The mortality is also always higher in children under nine years than in children above this age and in adults.

CLINICAL OBSERVATIONS.

General Condition.—An early and rapid improvement in the general condition of patients treated with anti-

toxin has been noted by nearly all who have used the remedy. The pallor and blueness of the countenance usual with diphtheria patients quickly disappears, or if the case is treated early in the disease this symptom does not develop. Children may often have large masses of false-membrane in their throats, and still be bright and playful. This improvement in the general condition in the writer's experience often takes place in from twelve to twenty-four hours. It is not uncommon to see severe malignant cases sitting up in bed playing within from twenty-four to forty-eight hours after the beginning of the treatment.

Effects on the Circulation.—The earliest and a very characteristic effect is the marked improvement of the heart's action and of the pulse. The heart-beats are slower and the sounds louder. The pulse falls rapidly in frequency, at the same time increasing in strength and in volume. In the writer's experience the pulse-rate would fall even in the worst cases twenty beats in the first twenty-four hours. In from twenty-four to forty-eight hours it was not unusual to find the pulse eighty or ninety per minute. Often within fifteen minutes after an injection a rise in the arterial tension was noted.

Respiration.—No change in the respiration due to the remedy itself is described, except in young children, in whom it may be accelerated. The only effect upon the respiration is its improvement incident to the removal of mechanical obstruction due to the presence of false-membrane in the air-passages.

Temperature.—According to Roux, if the remedy is given at the very outset the temperature rises only slightly above the normal. In fully established cases of the disease the temperature falls in a marked manner often on the day succeeding the first injection. The fall is rapid, the temperature line descending almost vertically. In severe cases the temperature fall is gradual, and it may not reach the normal for several days.

When the temperature remains high, in the absence of mixed infection, it is usually to be regarded as an indication for more of the remedy. In the writer's experience the fall in the temperature was usually marked. In the mild cases, and in cases of medium severity, this fall was usually sudden; in severe and malignant cases it was more often gradual.

False-Membrane.—The changes in the local lesions are marked and striking. In the writer's cases, for the first twelve or twenty-four hours there was no change in the appearance of the false-membrane. In severe and malignant cases it sometimes even increased during this period, but usually its formation ceased within twenty-four hours after the first injection. Generally, after the first twenty-four hours, the false-membrane lost its dry, opaque, grayish appearance, and became moist, somewhat translucent and milky white. Slight filmy false-membranes would rapidly disappear. The thick, piled-up false-membranes in from twenty-four to forty-eight hours begin to separate, both from the surface and from the borders. It is quite characteristic to see the false-membrane curling up and separating at the borders where it joins the mucous membrane of the part. The false-membrane disappears in the majority of cases by the third day. It may disappear earlier or later—as late as the seventh day in our experience.

Cervical Glands.—The swelling of the cervical glands usually begins to subside before the disappearance of the false-membrane. The glands, however, not infrequently remain somewhat enlarged and tender and appreciable to the touch for some time. If the glands are not already swollen at the beginning of the treatment, they do not become enlarged.

Albuminuria.—Some observers have held that diphtheria antitoxin causes albuminuria. This is now one of the most actively investigated questions in the anti-

toxin treatment of diphtheria. Much will depend upon its decision. The question is a very complex one, for, as is well known, a very large proportion of severe cases of diphtheria, treated by any mode of treatment, have more or less albuminuria. According to Von Jarsch all severe cases of diphtheria have albumin in the urine. The injection of large amounts of antitoxin into dogs has failed to produce albuminuria. The presence of the carbolic acid used to preserve the antitoxin has been objected to as a possible cause of nephritis; but it has been found that the injection of carbolic acid in solutions of the same strength used in the Behring antitoxin causes neither albuminuria nor nephritis in dogs.

Altogether the weight of evidence points to the conclusion that diphtheria antitoxin lessens the percentage of cases of albuminuria in diphtheria and does not cause nephritis. It will, however, require the study of a large number of carefully observed cases to settle this as well as other mooted points. Roux is positive that albuminuria is less common when antitoxin is used. Most observers hold that albuminuria existing before the antitoxin is given is not only not augmented but soon disappears.

Mixed Infections.—It is the opinion of all that cases of pure diphtheria are very much more susceptible to treatment than cases of mixed infection. From the beginning it has been observed by all that cases of mixed infection fail to show the rapid improvement under the influence of antitoxin so striking in cases of pure diphtheria. The antitoxin does not seem to increase the immunity against the organisms of mixed infection (the streptococcus and the staphylococcus) in the slightest degree. However, it appears to be established that cases treated early with antitoxin are much more liable to escape mixed infection than cases coming late to treatment or treated by ordinary means. It is also es-

tablished that cases of mixed infection do better under the antitoxin treatment than under any other. The explanation here is, of course, that if the diphtheria toxemia is eliminated from the case, the body is in a very much better condition to struggle against the micro-organisms causing the mixed infection, and the patient's chances are improved by that much. Clinical observation on this point has been substantiated by Roux on animals.

It may be said, then, that while antitoxin when given early very much lessens the chances of mixed infection, any considerable lowering of mortality in cases of well-established mixed infection is not to be looked for.

Croup.—When antitoxin is used the proportion of cases of "descending croup" is very much diminished. Results show that intubation is very much better adapted to cases of laryngeal diphtheria, whether primary or secondary, than is tracheotomy. The tube is quite sufficient in the large majority of cases to keep the air-passages open until the false-membrane is thrown off. Intubation is to be looked upon as the "complement of antitoxin."

Reinfection.—Several cases of recurrence of diphtheria after the use of antitoxin have been reported. Goebel reports two such cases. The reinfection occurred in one case on the twenty-seventh and in the other on the twenty-eighth day. Both cases rapidly yielded to injections of antitoxin.

Dosage.—The amount of antitoxin given must depend upon the effect produced in each individual case. The best guides are the effects upon the pulse and the false-membrane. According to Ehrlich and Kossel the amount necessary is from 400 antitoxin units in light cases to 1,000 to 15,000 or more in severe cases. The amount in cubic centimeters will of course vary with the strength of the preparation. For instance, one cubic centimeter

of the Behring No. 1 contains about sixty antitoxin units; one cubic centimeter of Roux's from fifty to sixty; one cubic centimeter of the Behring No. 2, 100. The antitoxin used at Ashtabula was found by Dr. Arey, in my laboratory, to have an antitoxic value of sixty units. Janowski has found Aronson's antitoxin about the same strength as Behring's No. 2. Some of the antitoxin obtained from the horses of the Health Department of the city of New York is stronger than Behring's No. 3. Kenyon, of Washington, has also obtained a very strong antitoxin.

Mode of Administration.—The remedy is to be injected subcutaneously with a large hypodermic syringe of from ten to twenty cubic centimeters in capacity. It is of the utmost importance that the syringe should be kept sterile. With this in view, several special syringes with asbestos plungers, which will stand steam or hot dry air disinfection, have been invented. But probably the one most generally used will continue to be the old-style syringe with the leather plunger. This can be quite safely sterilized by thorough washing with a 5 per cent. carbolic acid solution before and after using. The skin at the point of injection should be cleaned and sterilized. It is probably not necessary to use a dressing after the injection, though it can do no harm.

Several parts of the body have been used for the injections, the sides of the abdomen, the chest, the back, and the buttocks. In the experience of the writer the buttock is at once the most accessible and least painful point. If the skin is stretched taut with the thumb and fingers of the left hand, the point of the needle may be thrust in quickly for a distance of one to one and one-half centimeters without pain. After this is done, the needle may be carried in as deeply as is necessary and in any direction. The tissues of the soft flabby portion of the buttock are so loose and soft that the injection of the fluid

gives rise to little or no pain, and it is very rapidly absorbed. If this method is pursued, even young children, if they are ignorant of what is to be done, scarcely wince.

It is usual to give in severe cases one thousand antitoxin units at once, and to repeat in twenty-four hours. One may, however, divide the dose, and give half at first and the rest after ten or twelve hours. Mild cases usually require only from four hundred to six hundred antitoxin units; severe and malignant cases often require from four thousand to five thousand, or more.

It does not seem to make much difference whether the antitoxin solution is concentrated or dilute, provided always the necessary number of antitoxin units is given. Other things being equal, however, it is better to use an antitoxin of a high immunity grade.

High temperature, rapid pulse, and symptoms of toxemia, unless clearly due to mixed infection, are always indications for more of the remedy.

Immunization.—For the production of immunity small doses are sufficient. From sixty to four hundred or six hundred antitoxin units are usually given. The size of the dose will depend upon the body-weight and age. The artificial immunity thus produced lasts for a variable term, from a few days to six or more weeks. In a diphtheria-infected household every one should receive immunizing injections. If others take the disease after a few days, the injections should be repeated. Almost invariably individuals contracting diphtheria after these injections have mild cases, which yield readily to small doses of antitoxin.

Sequelæ.—Nearly all of the dreaded sequelæ of diphtheria are either entirely absent, or very mild, in cases treated with antitoxin. The proportion of cases having paralysis is very much reduced. In the forty cases of which the writer has notes there was only one case of paralysis, while in cases in the same epidemic treated

by ordinary measures paralysis was common. Heart lesions, both mural and endocardial, are very much less common in the antitoxin cases. In the writer's forty cases, in only three was there cardiac irregularity following the disease. All of these cases made rapid and perfect recoveries. One case, however, in which treatment was not commenced until the sixth day, died suddenly of acute dilatation of the heart.

Disappearance of Diphtheria Bacilli from the Throat in Cases treated with Antitoxin.—With the earlier disappearance of the false-membrane in antitoxin treated cases, it is probable that the diphtheria bacilli disappear earlier from the throat than in cases treated by other means. However, there is not enough evidence at hand to decide this point. The writer's experience has not been sufficiently large to draw positive conclusions from. It will take the study of a large number of cases to arrive at a definite solution of the question. Cases should be isolated until they have been proven free from diphtheria bacilli. By immunizing individuals in diphtheria-infected houses, epidemics of diphtheria can be rapidly controlled. The same rules adopted in fighting smallpox with vaccination should obtain in regard to diphtheria and the preventive use of antitoxin.

Additional Treatment.—It should be remembered that, although in cases coming early under treatment antitoxin may be regarded as a specific against diphtheria, in some cases, and especially in cases treated late in the disease and in cases of mixed infection, the use of other measures, the value of which is well established, should not be neglected. It is just in these cases that the skill of the expert clinician will save life. The writer has seen such cases, which in his opinion would have certainly died but for the timely use of stimulants by the attending physician. An abundance of good food is of the highest importance. It is advised to gargle

or to spray the throat at short intervals with some mild non-corrosive antiseptic solution. In the opinion of the writer, copious irrigation of the affected surfaces with the solution would be more efficacious. It seems probable that as ordinarily used the local application of antiseptic agents is of little value. In many cases, certainly, they do not reach the organisms which lie buried in the false-membrane. As the latter is thrown off under the influence of the antitoxin, their proper use is of the highest importance, as the diphtheria bacilli can then be reached and acted upon. Although the bacilli may not be killed outright, their virulence is at least very much attenuated. After the disappearance of the false-membrane it is important to destroy diphtheria bacilli remaining in the throat, thereby not only lessening the chances of the patient's infecting others, but very materially shortening the period of quarantine.

The ideal treatment of diphtheria in the future must aim first at the destruction of the infectious agent *in situ*, and secondly at counteracting the poison absorbed into the system. The latter requirement is undoubtedly filled by the antitoxin. The first is apparently accomplished by the early and frequent application of the solution recommended by Löffler, the use of this latter agent promising much in cases of mixed infection. Lately Roger and others have successfully used streptococcus antitoxin in the treatment of puerperal fever, erysipelas, and other streptococcus infections. If these results are confirmed by others, a great step forward will be made in the treatment of mixed infections in diphtheria.

Remote Effects of Antitoxin.—From the first it has been observed that a certain proportion of cases treated with antitoxin, after from three to fifteen or more days, developed painful skin eruptions, usually urticaria and

erythema multiforma. The occurrence of joint and glandular swellings and severe muscular pains, is met with in a certain proportion of cases. These, with the skin eruptions, appear to depend rather upon the proportion of antitoxin used and the individual susceptibility of the person, than upon the size of the dose. Their occurrence is not to be looked upon as due to the presence of infectious agents in the antitoxin, but to some unknown chemical body in the horses' blood-serum which is poisonous for certain human beings. Although the symptoms produced by this poison are distressing, they are not dangerous to life, and disappear without treatment in a few days.

It may be said in conclusion, that in the diphtheria antitoxin we have a specific for the diphtheria poison when applied early in the disease, and that the later the use of the remedy the greater the mortality. It should be remembered that the agent is antitoxic and not bactericidal in its action in the sense that it kills diphtheria bacilli present in the affected part.

A CLINICAL REPORT ON THE DIPHTHERIA EPIDEMIC AT ASHTABULA.

F. D. CASE, M. D., ASHTABULA.

As the title of this paper implies, it is not my intention to present a systematic essay on diphtheria, but rather to present the salient points of the recent epidemic at Ashtabula.

The following distinctive features make it worthy of your attention and furnish an excuse for this paper:

1. It is one of the few well-authenticated instances of an extensive epidemic of diphtheria due to infected milk.*

2. It was the first epidemic of the disease in this country in which a general use was made of antitoxin, and opportunity afforded to contrast the result with other accepted modes of treatment.

Most of the time for three years or more there have been cases of diphtheria in the First and Sixth wards, which adjoin Lake Erie and contain a large foreign population employed on the coal and iron docks. Among these people the enforcement of quarantine restrictions is extremely difficult. The disease was of a severe type,

*See Powers's report to Local Government Board Universal Medical Sciences, Vol. 5, p. 230; also Clark's report in same.

with large mortality. In these wards in 1891 there were three deaths from diphtheria; in 1892 seven deaths; in 1893 nineteen deaths, and in 1894 nineteen deaths. During these years, up to September, 1894, the other four wards were entirely free from the disease. In September and October, 1894, there were eight cases confined to a small section of the Fourth Ward. This was speedily stamped out, no cases being reported from that ward in November.

The first case ushering in the epidemic under discussion resided on West Street, in the Fifth Ward, and was taken ill December 4th, 1894. On the 5th there were six additional cases located on Bell Street, in the Third Ward; Center and Henry streets, in the Fourth Ward, and Bond Street in the Fifth Ward. On the 6th eight more cases were taken ill: on Station Street, in the Second Ward; and on Center, Henry, Gary, Main, Tyler and Chestnut streets, in the Fourth Ward.

On December 8th it was estimated that there were thirty cases in the Second, Third, Fourth and Fifth wards of the city.

The first death, that of the first person taken ill, a lady thirty years of age, occurred December 9th. On the 10th it was estimated that there were forty cases in the four wards mentioned, and the Board of Health declared the disease epidemic in that part of the city south of the main line of the Lake Shore and Michigan Southern Railway. The public schools in these wards were ordered closed. Another death occurred this day, that of a boy six years of age.

The simultaneous occurrence of such a large number of cases excited great alarm on the part of the public, and led to a rigid investigation on the part of the health authorities.

For two weeks previously a model of a Swiss village had been on exhibition, both day and evening, at 235

Main Street. Hundreds of children from the infected First and Sixth wards, as well as from the other parts of the city, had been in attendance, and the opinion soon became general that this furnished an explanation of the sudden outbreak of the disease. An investigation showed this theory to be untenable, as a large number of those taken ill had not visited the exhibition. The sewerage and water supply were each in turn inquired into and found free from suspicion.

When attention was called to the food supply, it was found that all the cases up to December 10th were in families that procured milk from a wagon of Smith's milk line, driven by Henry Smith. An inspection of Smith's dairy showed the cows to be in good condition and free from any indication of disease. They were supplied with pure spring water, and the barns and yards were in good sanitary condition. Henry Smith, driver of the wagon that supplied the infected families, was suffering from sore-throat as early as December 2d, and perhaps a day or two earlier. He continued on the wagon, however, except on the 5th and 6th, when his place was taken by another man.

December 12th the Health Officer reports that since December 4th there have been forty-nine cases of diphtheria reported, forty-seven of which were in that part of the city south of the Lake Shore and Michigan Southern track. Of the forty-seven cases, forty-five are in families that used Smith's milk. By resolution of the Board of Health Smith was prohibited from delivering milk for fifteen days from December 11th. In this connection the following cases are of interest:

Mr. P. and his two sons, aged six and twelve years, were taken ill with diphtheria in the early morning of December 5th. Mr. P. had gone from home December 3d and was at this time in Binghamton, N. Y. On the evening of December 2d they all partook freely of milk

for supper. The milk was procured of Henry Smith. Other members of the family did not use the milk and did not contract the disease.

Mrs. S. usually procured her supply of milk from another source, but on the morning of December 2d purchased one quart of Henry Smith. December 5th and 6th she was ill in bed with sore-throat, but did not call a physician. On December 19th, her son, aged fourteen, was taken ill with diphtheria, received the antitoxin and recovered. There had been no known exposure to the disease except from the mother. Many instances like the above could be cited.

It is true that the evidence pointing to infected milk as the cause of the epidemic is entirely circumstantial, since after repeated examinations the bacillus of diphtheria was at no time found in cultures from the milk or from the throat of Henry Smith. Yet most of our opinions in clinical medicine and therapeutics, like most decisions in law, are based upon circumstantial evidence. As Chief Justice Gibson has said: "You see a man discharge a gun at another; you see the flash, you hear the report, you see the person fall a lifeless corpse, and you infer from all these circumstances that there was a ball discharged from the gun which entered his body and caused his death, because such is the usual and natural cause of such an effect. But you did not see the ball leave the gun, pass through the air, and enter the body of the slain; and your testimony to the fact of killing is therefore inferential, in other words circumstantial. It is possible there was no ball in the gun, and we infer that there was only because we cannot account for death on any other supposition."

It is true that many persons used milk from this same wagon who did not contract the disease. It is of course not known whether every can of milk on a given day was infected, and, if such was the case, the inherent re-

sisting power of many persons to infectious disease would explain the exception. The array of a large number of negative cases — those in which exposure is not followed by disease — is of little importance unless at the same time an explanation having more elements of probability is at hand. The chance of such a series of admitted coincidences not due to a common cause is too small for calculation.

In Watson's Practice of Physic, in the chapter on Continued Fevers, is the following: "A man might say, 'I was in the battle of Waterloo and saw many men around me fall down and die, and it was said they were struck by musket-balls; but I know better than that, for I was there all the time, and so were many of my friends, and we were never hit by any musket-balls. Musket-balls therefore could not have been the cause of the deaths we witnessed.' And if, like contagion, they were not palpable to the senses, such a person might go on to affirm that no proof existed of there being any such thing as musket-balls."

Continuing our report:

December 13th, Dr. Miller, of the State Board of Health, accompanied by Dr. W. T. Howard, Jr., Prof. of Bacteriology in Western Reserve University, arrived for the purpose of investigating the epidemic.

December 14th. Board of Health authorized the Health Officer to procure from the Pasteur Institute, New York, a supply of antitoxin. Health Officer reports to date sixty-four cases in forty-two families, with eleven deaths.

December 16th. A quantity of antitoxin was received and administered to three cases.

December 17th. To date sixty-seven cases; forty-four houses quarantined; thirteen deaths.

December 18th. Seventy-five cases; forty-seven houses quarantined; fifteen deaths to date.

December 21st. Eighty-seven cases; fifty-one houses quarantined; eighteen deaths to date.

December 22d. Ninety cases to date; twenty deaths. Forty-seven patients convalescent; twenty-three under treatment.

December 28th. The Board of Health declare the epidemic at an end. There are still seventeen under treatment, most of them for sequelæ.

There were one hundred and eleven cases and twenty-three deaths during the month of December, 1894, of which one hundred cases with twenty-one deaths were in families supplied with milk from the wagon driven by Henry Smith. The public schools announced to reopen January 7th, after a vacation of four weeks.

From the beginning of the epidemic a rigid quarantine was enforced against the sick and all coming in contact with them. The convalescent were discharged from quarantine only after a four weeks' detention, unless a bacteriological examination showed them to be sooner free from the disease. All infected houses were disinfected under the direction of an employee of the Board of Health.

The adequacy of the means employed is evidenced by the fact that with over fifty houses quarantined there was no general spread of the disease, and in twenty-four days from the time the first patient was taken ill, and eighteen days after the disease was declared epidemic, the Board of Health were able to declare the epidemic at an end.

Of the total number of cases of diphtheria occurring in that section of the city in which the disease was epidemic, I have received a detailed report of eighty-two cases. Of these, fifty-nine cases received the usual treatment with iron, chlorate of potash, quinine and whisky internally, and peroxide of hydrogen or bichloride of mercury as a spray; of these forty-four

recovered and fifteen died, or twenty-five and four tenths per cent.

Of five cases treated with bichloride of mercury and whisky internally and peroxide of hydrogen and lime water as a spray, four recovered and one died, or twenty per cent.

Of eighteen cases treated with antitoxin sixteen recovered and two died, or eleven and one-tenth per cent.

In order to secure a broader field for comparison, I have obtained a report of forty-eight additional cases occurring in the city between December 1st, 1894, and April 15th, 1895, making a total of one hundred and thirty (130) cases, occurring in the practice of ten physicians.

An analysis of these cases gives the following result :

DETAILS OF TREATMENT.		AGES OF PATIENTS.			
		Under 2 years	B'tw'n 2 and 10.	Over 10 yrs.	No. Cases Tre'd.
Treated with serum	Recovered	2	26	22	50
	Died	1	1	2	*4
Treated without serum	Recovered	2	15	41	58
	Died	1	9	8	†18

*7.4 per cent.
†23.3 per cent.

Average age of those treated with antitoxin, 12 years.

Average age of those treated without antitoxin, 18 years.

Cases treated :

1. Bacterially proved to be diphtheria, 47 ; of these, treated with antitoxin, 29 ; treated without antitoxin, 18.

2. Not bacterially determined, 83; of these, treated with serum, 25; treated without serum, 58.

Amount of serum used to each patient varied from 12 to 113 cubic centimeters.

The foregoing statement, while statistically correct, would be to a certain extent misleading without farther explanation. In all the fatal cases the antitoxin treatment was begun after several days' illness.

Case No. 1, a boy twelve years of age, had been ill six days, was profoundly septic and had diphtheritic laryngitis, which later necessitated intubation. He lived two days after the first dose of antitoxin.

Case No. 2, a young lady twenty-eight years of age, had been ill six days, and had received during that time the iron treatment. Like the previous case she was suffering from both diphtheritic laryngitis and septicemia when she received the first injection of antitoxin. She lived five days after the first dose.

Case No. 3, a child four months old, received the antitoxin on the fourth day. It died of septicemia on the evening of the third day thereafter.

Case No. 4, a child three and a half years of age, suffering from diphtheritic laryngitis, received an injection of antitoxin on the fourth day after the development of croupy symptoms. Intubation was done the evening of the same day. She lived three days and died septic. This child had had sore-throat with swollen glands for several days previous to the beginning of the laryngitis, but a physician was called only when suffocation was imminent.

In the opinion of the attending physicians life was prolonged in each of the fatal cases by the use of antitoxin. The first two cases were almost *in extremis* when the remedy was injected, and yet lived two and five days respectively, and in the latter case with good prospect of recovery.

All the cases recovered that were treated with antitoxin before the fourth day of illness.

In cases not treated with antitoxin, heart-failure, occurring about the time of or shortly after the disappearance of the membrane, was a frequent cause of death. In one case death in a patient forty years of age was due to a piece of membrane being drawn into the larynx during a violent fit of coughing. In another case a violent urticaria developed on the tenth day of illness, and was followed two days later by persistent vomiting and threatened heart-failure. Patient recovered.

The most frequent sequelæ in cases not treated with antitoxin were paralytic in character. These varied in degree from slight aphonia or difficulty of deglutition to complete hemiplegia.

Difficulty of locomotion somewhat resembling the gait in ataxia was observed in two cases. Double vision in two cases. Irregularity or intermittence of heart's action was frequent. In one case the symptoms were so alarming that the recumbent position in bed was insisted on for a period of two months. Patient made a good recovery.

The hemiplegia occurred in the case of a young lady eighteen years of age, and was accompanied by aphasia. There was no loss of sensation. Motion of upper extremity is still confined after five months to flexion and extension of wrist and fingers, and pronation and supination of forearm.

The sequelæ following antitoxin treatment were in general quite different in character, but in two instances where it was not given until after the third day mild paralytic symptoms were developed.

Urticaria was reported in seven cases, and was probably present in some degree in others.

Rheumatism was reported in five cases, and was in some instances quite severe for several days. Both

urticaria and rheumatism also followed the use of antitoxin for immunization. Slight inflammation of the parotid was reported in two cases. In no instance have abscesses followed the use of antitoxin, nor have there been other local symptoms save mild erythema and some muscular soreness at the point of injection. Nor in a single instance have the constitutional effects of the antitoxin been such as to cause the slightest anxiety to the attending physician.

In most cases all other treatment has been omitted after the antitoxin was given, but in a few instances whisky was administered and an antiseptic spray used locally. There is no question in therapeutics upon which the local profession are more fully agreed than upon the efficacy of antitoxin in diphtheria.

All the serum used at Ashtabula was procured of the Pasteur Institute, New York.

I regret that there is occasion to call in question many of the statements in an article entitled "A Dangerous Antitoxin," which appeared in the March number of the Cleveland *Medical Gazette*. Similar statements emanating from the same authority have appeared from time to time in the public press.

In the *Gazette* article, the writer says, "Through the courtesy of Dr. A. W. Hopkins, Health Officer at Ashtabula, Ohio, I received a sample of a diphtheria antitoxin which had just been received from New York. This antitoxin was obtained from the same source as the supply which had been employed during the epidemic at Ashtabula a short time previously.

"Dr. Hopkins informed me that he took the sample from a freshly opened bottle, and then transferred it inadvertently to an empty bottle which had previously contained some of the same material."

Now the facts are, and Dr. Hopkins authorizes the statement, that the empty bottle to which the fresh

sample was transferred had lain uncleansed in a warm room from four to six weeks. He farther says that he informed the writer of the papers before their publication of the facts, and apologized to him for sending the serum under such conditions, "even to inject guinea-pigs."

If we recall the fact that blood-serum furnishes one of the very best of culture media, it will not excite surprise that an examination of other bottles kept under like conditions shows in every instance the adherent serum to have undergone putrefaction. The serum is described by the writer as a "thick, slightly yellowish fluid, containing a pronounced flocculent white precipitate; and it had a strong odor of camphor."

Dr. Hopkins tells me that out of the whole amount of serum used in Ashtabula, about 100 bottles of 25 cubic centimeters each, in not a single instance has there been a precipitate, even on keeping six or eight weeks, and in no instance have the results of a dose of that long on hand been different from that of a fresh article.

I think you will agree with me that the examination of serum obtained under such conditions that it could hardly escape infection, hardly called for such startling headlines in the public press as the following: "Putrid Antitoxin. The Stuff used in Ashtabula. A Doctor's Discovery," or the following: "Swarms of Bacteria. They are found in a sample of Antitoxin such as has been used at Ashtabula."

But I will not weary you by a further discussion of the papers in question, since perhaps the author belongs to a class so pithily described by Dr. Holmes as being "always positive and sometimes accurate."

We are still using the same brand of antitoxin in the cases that are of frequent occurrence in the First and Sixth wards.

In conclusion, I would summarize our present knowledge of diphtheria as follows:

Diphtheria is an acute, specific, contagious and infectious disease.

It is primarily a purely local disease, caused by an external parasite, the Klebs-Löffler bacillus.

The condition necessary for the production of the disease is the presence of the bacilli in quantity and activity sufficient to overcome the individual's power of resistance.

Diphtheria always results either directly or indirectly from a previous case, but unsanitary conditions have great influence on the propagation and virulence of the disease.

As a rule, one attack confers immunity for a limited period.

The constitutional symptoms are due to the absorption of the poisonous products of the primary disease from the local lesion.

Changes occurring in the blood and tissues, and the various sequelæ, are caused by the direct or indirect action of toxins or toxalbumins.

And, finally, the discovery, or rather the development, of the antitoxin treatment of diphtheria is the greatest achievement of modern therapeutics.

SOME REMARKS UPON THE PRODUCTION AND DISTRIBUTION OF THE DIPHTHERIA ANTITOXIN.

A. P. OHLMACHER, M. D., CLEVELAND, O.,

Professor of Pathology in the Medical Department of the University of Wooster; Pathologist to the Cleveland City Hospital and the Cleveland General Hospital.

Having been engaged, during the past six months, in a series of experiments with the diphtheria antitoxin in my laboratory at the Medical Department of the University of Wooster, in Cleveland, and having, during this time, carried out all the steps in the manufacture of this product, together with its employment in a series of cases of diphtheria, both as an immunizing and therapeutic agent, I feel that the results of my experience may enable me to point out some of the dangers of the new remedy. I do not mean by this that my confidence in this agent as a marvelous therapeutic discovery is in any way weakened, for, on the contrary, my increasing knowledge of the clinical effects of a properly-prepared and correctly-administered antitoxin makes me more and more enthusiastic as to the wonderful efficacy of the serum-treatment of diphtheria. There are, however, certain dangers in the manufacture and use of the remedy that are either unknown or too little appreciated, and it shall be my endeavor to briefly point out these dangers, and to indicate possible remedies for them.

In order that the subject may be better understood, allow me to direct your attention to a short outline of the steps in the manufacture of the diphtheria antitoxin. To illustrate the remarks upon this point, this series of preparations has been brought for your inspection to demonstrate the stages of the work. The test-tubes in this rack are arranged in order, beginning with a tube of Löffler's culture-medium on which an eighteen hours' pure culture of the diphtheria bacillus has grown. The second tube contains the sterile bouillon, or beef-tea, in which the diphtheria bacilli are grown in order to obtain their toxins; then comes a tube containing a two weeks' growth of the diphtheria bacilli in the bouillon, to which has been added ½ per cent. of trikresol to kill the bacilli. On shaking this tube and comparing it with the tube of sterile bouillon you will notice a dense cloud in the fluid. This cloud is composed of great numbers of dead diphtheria bacilli. During their growth in the bouillon the bacilli have appropriated the albuminous materials of the meat and peptone contained in the bouillon, and they have thrown off other proteid substances called *toxins*, which are dissolved in the fluid, and which change the harmless beef-tea into an intensely poisonous solution. Tube 4 contains the finished toxins, which are obtained by merely filtering the contents of tube 3 through a tube of unglazed porcelain, which withholds the bodies of the dead bacilli but allows the fluid to pass through. You will observe that the fluid is once more perfectly clear, and that it is identical, physically, with the sterile bouillon. However, while a considerable quantity of the fluid in tube 2 might be injected under the skin of a guinea-pig, one-tenth of a cubic centimeter of the fluid from tube 4 will kill a guinea-pig weighing 500 grammes in thirty hours. The last tube contains some of the antitoxin obtained from our immune horse, April 1. It is a very powerful serum, and has an

immunizing value of more than 1 to 100,000 of the French notation. I would invite you to especially note its light color, transparent brilliancy, and freedom from odor of any kind.

Essentially, the steps in the manufacture of the diphtheria antitoxin may be outlined as (1) the manufacture of the toxins; (2) the immunization of the horse; (3) the bleeding, and the recovery of the serum; (4) the preservation of the serum. In a general way the process of making antitoxin has been recently discussed in American medical literature, and I shall only indicate certain points in the technique upon which stress should be laid. In a report upon the method of producing the antitoxin, read before the Cleveland Medical Society, Feb. 22,* I called attention to certain modifications in the manufacture of the toxins which considerably simplified the process, and which succeeded in discarding the forcing methods of Roux and others. On this occasion much significance was attached to the virulence of the diphtheria bacilli at the time they were inoculated into the bouillon, and a method of intensifying the virulence of an attenuated culture by passing it through a guinea-pig, and recovering the bacilli from the visceral organs, was advised. The practical value of all these modifications has been confirmed by my more mature experience, and I have been able to produce constantly a diphtheria toxin of unusual power; and while the virulence of the cultures with which I have been working has fallen below the standard on two occasions, it has been easily revived by passing the cultures through the guinea-pig's liver or spleen. In this way a toxin has been produced which invariably kills a 500-gramme guinea-pig between the twenty-fourth and thirty-sixth hour in a dose of 0.1 c. c.

*Medical News, March 16. 1895. pp. 287-292.

In immunizing the horse no new features have developed, as the experiments have all been made on one animal. The record made in our experiments is, however, unsurpassed, to the best of my knowledge, for the horse used in this work was made immune to a dose of 250 c.c. of very powerful toxins in forty-seven days.

We hear a good deal of nonsense about the choice of a horse for the antitoxin work. For example, we are told that only young and well-bred, or, in other words, expensive animals should be chosen ; that they should be tested with mallein for glanders, and with tuberculin for tuberculosis ; that they should be kept with especial care in stables which are daily disinfected with sublimate solutions. The fact of the matter is that the most suitable horses for the diphtheria work are animals from eight to fourteen years of age, which have been toughened by hard work and ordinary care. Glanders is not so frequently present as one would think to read the accounts of certain manufacturers of antitoxin ; and as to tuberculosis, the horse enjoys an almost perfect natural immunity against this disease. Such procedures as a show of cleansing and disinfecting the quarters in which a horse is kept are simply ridiculous, and are carried out solely for the moral effect on the uninitiated. Why not go a step farther, and claim that the antitoxin horses should be shaved and scrubbed daily with green soap, followed by a sublimate bath ?

The directions for bleeding the horse are much nicer in print than they are in practice. It would look as though all that were necessary would be to quickly expose the jugular vein, thrust a sterilized cannula into it, and catch the uncontaminated blood. Now the horse happens to be an animal that has just enough instinct to object to such an ideal prosecution of this operation, and after a few bleedings it becomes so well educated that it makes things lively for the operators. The progress of

the prescribed directions is sadly interfered with, and many a struggle of the horse and scramble of the attendants mars the work. Besides, it is no easy task to find the jugular vein when the horse is restless. I believe my own method of bleeding, which does away entirely with the troublesome cannula, is a superior one, and still it is a difficult operation to bleed a horse for a gallon and a half of blood, even under the best of circumstances.

It is all well enough to sterilize the jars in which the blood is to be caught, and, if one is esthetically inclined, the jars may be capped with paper covers, etc.; but woe to the bacteriologist who deludes himself into believing that he is catching the blood under aseptic conditions! Even with a sterilized horse, along with everything else that is recommended by some more ingenious than practical bacteriologist, I insist that it would be an accident to catch a jarful of sterile blood. The separation of the serum is another process in which it is almost impossible to avoid contamination by bacteria or molds. This applies also to the filtration of blood-serum through unglazed porcelain, for it is one of the most difficult tasks in bacteriological technique to obtain a sterile and durable blood-serum by this method. It is absurd, then, for us to talk about "sterile" antitoxin, in the sense of germ-free.

As it is practically impossible to place a germ-free serum in the hands of a physician for clinical use, it is necessary to remedy this defect by adding some chemical substance that will destroy, or inhibit the growth of, the micro-organisms which have obtained access to the serum; that is, a chemical preservative must be added. It happens, unfortunately, that blood-serum is a very difficut substance to preserve in such a condition as to be safe for injection into the human tissues. Many of the chemical preservatives are toxic, some produce precipitation or other harmful alteration in the serum, and others are too weak to

inhibit the growth of micro-organisms. In a former report* I pointed out that a preservative should be odorless so as not to disguise an odor of putrefaction; non-toxic when injected subcutaneously; and without harmful effect on the antidotal body residing in the serum. A series of experiments were also recorded in which various substances recommended for the preservation of the serum were tried, together with other agents not mentioned for this purpose. As a result of these experiments I concluded that 1 per cent. of dry sodium salicylate added directly to the serum was the least objectionable preservative. Compared with the camphor used by Roux and his followers, or the carbolic acid, trikresol, or chloroform employed by Behring, Aronson and others, I think sodium salicylate a superior agent. It is not harmful in injection; it is odorless; it does not precipitate or gelatinize the proteids in the serum; and it inhibits the growth of bacteria as well as the more powerful substances. Still it is not a positively certain preservative if the serum be kept in an ordinary bottle, especially in warm weather. Sooner or later either molds or bacteria develop in the serum, and this is equally true of any of the chemicals now employed in keeping the antitoxin, in the quantities in which they can safely be used. I might have brought with me samples of serum containing carbolic acid, trikresol, chloroform, thymol, salicylic acid, and salicylate of soda, all of which exhibit growth of molds, or bacteria, or both. Of all the substances recommended and employed in antitoxin, camphor is the most miserable, and I think a serum containing it ought to be uniformly condemned, for the serum to which it is added will often be found to be swarming with bacteria after a few days' exposure at the room temperature.

Blood-serum is, of course, an ideal culture-medium for all kinds of bacteria, and it seems to be an especially

*Loc. cit., p. 291.

stubborn substance to disinfect, and no method of preservation recommended at the present time is sufficient to prevent the ultimate development of micro-organisms in the serum when kept at the room temperature. This being true, I believe we have a correct explanation of some of the bad results which have occasionally followed the use of the antitoxin, and it is quite probable that the case of sudden death in Brooklyn, following the injection of Behring's antitoxin, may have been due to a serum which had become invaded by some highly toxic species of bacteria. Simply because two other bottles of serum from this same lot were perfect is no shield for the suspicious bottle, for I have frequently seen one bottle of antitoxin from a given bleeding go bad beside another bottle which would remain unaltered, both samples being taken from the same lot of serum, and handled under precisely similar conditions.

I feel that the indiscriminate use of any of the commercial antitoxin, kept without special precautions, is a dangerous experiment, and unless the profession is speedily educated to appreciate the exact character of the danger we shall hear of other unfortunate results, and a most valuable therapeutic agent will be thrown into disrepute.

No diphtheria antitoxin can be safely kept more than a few days unless it be stored in an ice-chest. Even when kept at the refrigerator temperature the serum is liable to contamination, especially with certain species of hardy molds, which look so like some suspended albuminous precipitates that they can only be detected by careful microscopic study.

In the instructions accompanying some of the brands of commercial antitoxin it is directed to examine the serum for cloudiness, or for a putrefactive odor, as an evidence of contamination. Many bacteria grow in the serum without producing noticeable odors; and, again, such chemical substances as camphor, carbolic acid,

trikresol, or chloroform tend to disguise a foreign odor. The cloud test is also unreliable, since certain very delicate proteid precipitates are likely to appear in the serum, no matter how it is kept, and these precipitates can only be differentiated from bacteria by a well-trained observer with the use of the higher powers of the microscope.

It may be asked why the remedy cannot be prepared and dispensed in a dry state, or why the antidotal principle, whatever it may be, cannot be isolated in a pure state from the serum. Dried blood-serum may be readily prepared, but, like other organic substances of a similar nature, the desiccated serum becomes an ill-smelling, bacteria-ladened substance. With the present uncertain state of our knowledge of the chemistry of even the best known proteids, it is scarcely possible that we shall succeed in isolating that substance of whose exact nature comparatively nothing is known — that is, the antitoxin contained in the blood-serum of an immune animal.

Still another danger in the commercial distribution of the diphtheria antitoxin lies in adulteration and counterfeiting. No test known to physics or chemistry can at present distinguish between the blood-serum of an ordinary horse and the serum containing the diphtheria antidote. The only certain test is the physiological one, in which the diphtheria toxins and the antitoxin are injected into a susceptible animal. This very delicate test can only be applied by a trained bacteriologist who has all the facilities of a well-equipped laboratory at his disposal.

Taking all these possible faults into consideration, it must be evident that the antidiphtheritic serum is a product which must be manufactured, dispensed and used with great caution. In fact, in the present state of its manufacture, the diphtheria antitoxin is unfit to be

dispensed and used indiscriminately, as is now done with the commercial article.

How, then, should the remedy be produced and distributed? Considering all the possible accidents which may befall this substance, about which we know so little, after all, I believe the diphtheria antitoxin ought to be manufactured exclusively under municipal or State supervision. There ought to be a central source of supply for a given territory, depending upon the number of inhabitants, the number of physicians, and the transportation facilities of the locality. The antitoxin ought to be made by specially trained individuals, and the stock of serum ought to be kept on ice, and to be subjected to regular daily examinations by a bacteriologist educated to interpret all the changes likely to occur in the substance.

As to the distibution of the remedy, I think it ought to be an invariable rule to dispense it for immediate use only. The location of the depot of supply ought to be such that a physician could obtain a sufficient quantity of the serum on short notice for clinical purposes, thus setting aside the danger that now obtains when antitoxin is left lying on drug-store shelves or in doctors' offices.

It is now generally admitted by physicians that the diphtheria culture test is a legitimate function of a municipal laboratory, and since the culture test and the antitoxin treatment for diphtheria are inseparably related to each other, it seems safe to predict that the municipal and State boards of health of this country must soon follow the example of the New York Board of Health and of the Massachusetts Board of Health, and provide well-equipped laboratories in which this work can be done; and since we are only on the threshold of a wide application of laboratory methods in medicine, it will not be long before the work of a central laboratory

will become an absolute necessity to physicians in general.

DISCUSSION.

DR. HALDEMAN:

I find, upon close observation and comparison, that the European and American hospitals do not differ very materially in their per centum rate of mortality, as I find them tabulated. So then, I need not dwell upon this portion of its literature. I cannot see, for the life of me, nor do I wish to be blind, wherein this new method has any advantages over the old. But I do see, and know, that it has drawbacks, and great ones, which the old one has not. It has them in the manner of its manufacture. It has them in the cost attending its purchase and administration. It has them in not being able to furnish it in sufficient quantity, and in due time for use, in city, town, and country. By the old method, all places can be penetrated and classes reached and satisfied. Now, which should we adhere to, the impracticable or the practicable? Wisdom says, the latter. Let us improve it if possible.

One year ago, at the Ohio State Medical Society, I read a paper giving my general and special treatment of diphtheria. To it I would refer you now. I need not repeat it here. It has always answered the purpose well and satisfactorily. The mortality rate in my own practice is not high, and covers a period of about forty-one years. During that time I have practiced in several diphtheria epidemics. In the year 1878, when I was physician to the John McIntyre Children's Home, Zanesville, O., there were thirty of the inmates down with it at one time in its most malignant form. All recovered but one. The matron thought he would have recovered if they could have made him take the medicine. This was a mortality rate of a small fraction over 3 per cent. Furthermore, I would say I never lost but one patient in a family, and never more than in two families in the same epidemic, while some practitioners, in the same epidemics, lost whole families. I never fail to put the family immediately upon a prophylactic treatment. (Immune them if possible!) By so doing, I very seldom fail to prevent it, if it is not already in the system, and

if it is, then they will have it more mildly. My prophylactic remedy is, to administer the medicine to the other members of the family that I use as a cure, Haldeman's comp. glyc. ferri. (See Transactions of O. S. M. S., 1894.) This remedy immunizes, in my humble opinion, as effectually as the antitoxin and lasts as long. I intend to use it, for reasons already given, until I find a better one.

Now, in conclusion, I will make a few quotations, to show that I am not alone in my views, and they shall be trustworthy. Their authors are of high repute. I am in good and abundance of company. I will commence with Dr. D. S. Maddox, of Marion, O. In an article lately published in the *Columbus Medical Journal*, he says: "Published statistics from Berlin and Paris hospitals show an average mortality of 25 per cent. as against a former one of 50 per cent. These statistics are vitiated when we consider the fact that new mild cases are taken into the hospital, whereas formerly only serious ones were taken. It is the fashion now to call diphtheria, every case of sore-throat that shows the Löffler bacillus, although it is not proved that this particular microbe is the cause of the disease; it is found in various throat affections, and also in throats apparently healthy." Hausemann, an associate of Virchow, says that animals injected with a culture of Löffler bacillus do not take diphtheria but a disease *sui generis*. Virchow, the greatest living pathologist of this age or any other, denies that the bacillus bears a causative relation to diphtheria. Hausemann says also, antitoxin *does not immune*. He recently cited cases before the Berlin Medical Society, where children had taken diphtheria after having been inoculated with the serum; also cases where a second attack had occurred after the serum treatment. Prof. Löffler, the father of the bacillus as far as the discovery is concerned, recently reported seventy-one cases of diphtheria cured without the loss of one, by the local application of a solution of toluol, liq. ferri sesquichlor. and alcohol. This certainly puts the antitoxin in the rear, and the good old method in the front. Lawson Tait in a recent paper said, bearing upon the great germ theory: "It is a theory which is no theory at all, but a phantasm to a system which has proven an incon-

stancy and a broken reed—a thing which yields to every blast, either to scholastic logic or eclectic experiment."

My denunciations are perhaps not so vigorous as Tait's, and Virchow's, and Hausemann's, and others I might name. I wish to be as lenient as possible. I still wait for further developments, and hope the future will afford us something brighter and better than the past. I have no inclination to assign it to the grave of Kochism, and the exceedingly rapid decline of Pasteurism. I hope that in a year hence we all may be spared the sad task of singing the Behring serum's funeral-dirge; but instead, pronounce the highest encomiums and alleluias relative to its fame and onward march.

DR. FULLERTON:

It is not my wish to appear here as an absolute unbeliever but as the honest doubter; perhaps, as Emerson made Brahma say:

"I am the doubter and the doubt."

There are a few points where there seems reason to believe that fallacies may have crept into these statistics. In the first place it is doubtful if the mortality of the disease in America generally is so high as 40 to 60 per cent. There were during the past winter in this city thirty cases of the disease with but four deaths, a mortality of but 13⅓ per cent., with not enough of serum-treated cases to change very materially the ordinary results of treatment. In New York city Dr. Jacobi states that the epidemic during the past autumn and winter in which a mortality of only 22 per cent. under serum treatment was obtained, was mild, and would not under former methods of treatment have resulted in a loss of over 25 per cent. of the cases. In regard to the serum itself, it is probably the least vitalized fluid of the body, consisting chiefly of a few salines and water. Reasoning deductively it would seem to give little promise of the wonderful results claimed for its use in diphtheria. Does it act as a poison to the Klebs-Löffler bacillus, or does it feed the phagocytes? These matters, it seems, should be worked out a little more thoroughly.

Again, it were well to inquire what the effect upon statistics has been of modern methods of diagnosis. If by bacteriological examination we introduce mild cases

that were formerly called something else than diphtheria, we can easily reduce the percentage of mortality under any treatment. I know that formerly in Columbus many physicians in doubtful cases reserved a positive diagnosis of diphtheria until they were sure that the patient was going to die.

As to the ordinary treatment of the disease I have long held that it was unphilosophical if not harmful. What good can tincture of iron and chlorate of potassium possibly do? Iron is but slowly and to but limited extent utilized in the system, and chlorate of potassium an irritant to the kidneys more likely to do harm than good. Moreover, the practice of applying caustics to the throat and of tearing off the membranes, practiced for years, is in my judgment strongly to be condemned. Both methods are liable to leave bleeding surfaces from which the absorption of poisonous material or germs is likely to take place.

The frequent thorough use of some unirritating gargle or wash (simple water or salt solution might do, but the local use of weak solution chlorate of potassium I prefer), together with the supportant treatment, especially whisky and milk in sufficient quantities, has, in the speaker's experience, given excellent results in uncomplicated cases.

DR. EBRIGHT:

It would seem that the gentleman who has just taken his seat cannot class himself with King Agrippa, because he said to Paul, "Almost thou persuadest me to be a Christian." The gentleman said at first he was somewhat of a doubter regarding the antitoxin; but before he sat down he satisfied me that he was a doubter regarding all treatment.

I have been passing through an epidemic of diphtheria, where the antitoxin has been used in some cases, and in some cases it has not been used. I am the physician in the Children's Hospital at Akron, and am also health officer, and had an opportunity to study the epidemic since the fourth day of March. I have no desire to occupy your time or convert any man to any special treatment, but I do believe he who treats diphtheria, or any other disease, and does not give his patients the benefit of

every remedy furnished him by science, is in a certain measure responsible if the patient dies. On the 21st day of March I saw a boy with what I believed was diphtheria. Afterward I found him convalescent. Later I found a boy who had had measles. On the 28th the nurse was aroused by a peculiar cough from this boy. I was called at 5:00 o'clock and saw him at 6:00. I diagnosed diphtheria. My prognosis was unfavorable; and, whether it was the disease or the strict discipline in the house, my prognosis was verified within two days. The boy died on the 30th day of March. In that hospital there were forty boys occupying a common bedroom, and sixteen girls another common bedroom; the children in the nursery a common bedroom, and all eating in a common dining-room. I could only expect that I was in for an epidemic of diphtheria, and fully anticipated a number of deaths. I went to Cleveland, saw Professor Ohlmacher, and he promised to come back with me, which he did on Saturday. And I want now to make my public acknowledgment of thanks to him for it. We commenced using the antitoxin, and from the time we commenced it in that hospital and in my private practice, I have not had a case of diphtheria, except two, that have not been examined bacteriologically, and there has not been a case but cleared up within twenty-four to forty-eight hours. There has not been a child, out of twenty-seven cases I have seen, but could drink from a bowl of water shortly after introducing the antitoxin, as well as any time before the attack. For instance, a colored boy, seven years old, was seen on Friday, when he was so hoarse he couldn't speak above a whisper; temperature $103\frac{1}{5}°$; pulse 140. He looked like ashes. I fully anticipated he would follow the way of the white lad who didn't get any of the antitoxin. I gave him 5 c. c. and afterward 5 c. c. more, and at four o'clock the next day he sat up and sang with a clear voice. A German child, seven years old, who has worn a tracheotomy tube since the 9th of January, was seen by me on Thursday. I believe the tracheotomy was performed for papilloma in her throat. When I saw her, her pulse was 140, and she had all the evidences of dipththeria. I gave 10 c. c. of the antitoxin at four o'clock in the afternoon. The next morning her throat was clean, and she has not taken a

dose of medicine since. I saw her yesterday, sixteen days afterward, and she is well.

Mary McD., weighing 132½ pounds, with very dark complexion, long black hair, without a tooth in her mouth but had been filled, with a bad breath, heavily coated tongue, pulse almost past counting, temperature high. A physician who saw her offered a wager of a bottle of wine she would be dead within twenty-four hours. She had fainted three times when I saw her. After giving the antitoxin, the patient recovered.

DR. NORTH:

I want to rise on the part of the young men, in the discussion of antitoxin. It has been said that figures lie. I believe there is a mistake in that. Figures do not lie, but figurers do lie. There has been a great deal quoted about the statistics of the past and the statistics of the present. I believe the statistics gathered during the last few months are the only ones of any value, because before then everything was reported as diphtheria, and now we know what is diphtheria and what is not diphtheria. Regarding the good results of antitoxin, Virchow, who was at first very skeptical about it, finally admitted the use of the antitoxin in his hospital in Berlin. After a time the supply of antitoxin was exhausted, while he was out of the city, and when he returned, about two weeks afterward, he found the mortality had increased to almost double what it was before; and he went back to the use of the antitoxin, and the mortality went down to where it was when they used it before. With such reports, I think we cannot go back on the figures. I have had no experience whatever in the use of antitoxin, because in Toledo we have had very little diphtheria since the antitoxin has come into use. But I believe in the use of it. I think the statistics justify it. And then, in connection with diphtheria, we have the staphylococcus infection, which complicates the cases very much; and only recently we have an antitoxin for such cases. Now, with the combined treatment of the diphtheritic antitoxin and the staphylococcus antitoxin, I think we will be able to save a much larger proportion of these cases.

DR. EICHBERG:.

The question of the antitoxin treatment of diphtheria is not a question between the old men and the young men of this Society, and the young men require no special defense. The treatment stands on its own merits; and if it falls, it must fall on its own merits. This question can not be profitably discussed *except by those who have had experience;* and they are almost unanimous in favor of the antitoxin treatment of diphtheria. It is not fair to judge of its success from its effect in cases which would certainly die under any treatment. On the other hand, we should not say that more mild cases are being cited for this plan of treatment than heretofore. Nor does it change the position because the gentlemen who have had recourse to this treatment have retained the local treatment. Even with all these measures of treatment, cases have succumbed. Nevertheless the antitoxin treatment will save many cases. Such beneficial results were cited by the gentleman from Akron. The same results have not been obtained by any other remedy. The change in the appearance of the throat in twenty-four hours is almost magical, and it would be difficult for one not familiar with the plan to believe it, if seeing were not believing. There is no stronger argument, in my mind, as to the efficacy of the treatment, than a statement by Prof. Virchow, of Berlin. In a report to the Pathological Society, Prof. Virchow says: "We can not explain the action of the antitoxin on any approved therapeutic plan, but any physician is culpable who does not use it." When it is borne in mind that Prof. Virchow is not hasty, and it was through him the first information was brought before the profession as to the bad effects of tuberculin, his remarks should have some weight. Now, there is no better way to kill or throw cold water upon anything than by ridicule. The fact that "figures will lie" when falsely interpreted, is not to be thrown up as an argument against figures. In the epidemic at Akron, where I believe seven out of twenty-seven cases died before the introduction of the antitoxin treatment, only one case died afterward. The longer we delay the treatment after the appearance of local symptoms, the greater is the danger to the patient.

The value of the antitoxin treatment will appeal to every one who will employ it. As to its curative properties, there can be no doubt in the mind of any one who has properly employed it, though its prophylactic value has not been clearly established.

DEAFNESS FROM INTRANASAL DISEASE.

JOHN A. THOMPSON, M. D., CINCINNATI, O.

All the scientific work done by physicians, in their own field of labor, is directed towards the prevention or relief of human suffering. Our physiological laboratories only fulfill the purpose of their creation when they investigate and teach the laws of normal being, and show us how to avoid a disastrous conflict with them. Pathological investigations, including bacteriology, are meant to teach us the true nature of disease, that we may prevent or cure the abnormal processes revealed. We seek for knowledge only that we may apply it to the individual case. As the object of all this study is clinical, suggestions for physiological and pathological research must largely come from clinical observation. The experience of the physician in his daily rounds among the sick and suffering should show where we are lacking in knowledge. The practitioner should suggest the topics that the investigator may work out in the laboratory. I believe it a duty, where a physician encounters cases that cannot be explained by known physiological and pathological principles, to place these cases on record, hoping that some acuter mind may supply an explanation which will result in the prevention or cure of similar conditions in other patients.

Diseases of the ear are more intractable to treatment than those we encounter in any other department of medicine. Late cases of chronic catarrhal otitis media, in either of its forms, are regarded by experienced otologists as being almost hopeless by modern methods of treatment. From this hopelessness arises the constant suggestion of new procedures directed to the ear itself, in the hopes of at least partially restoring the function which is so important to the happiness and success in life of the individual. A few observers, notably Swineburne, turning from the attempt to cure the already established condition, have sought to lessen the number of hopelessly deaf by seeking the cause and method of prevention. Swineburne examined the nose and throat carefully in a thousand cases which presented themselves at the Harlem Eye, Ear and Throat Infirmary, complaining of deafness. Where deafness results from disease of the middle ear, his conclusions are that in 95 per cent. of all cases the primary lesion is in the nose or nasopharynx. Just how disease in these organs produces chronic inflammation in the tympanic cavity, has been a question of dispute. Some experienced writers claim it is due to the direct extension of inflammation by continuity of tissue. In structure, the tympanum is only one of the accessory sinuses of the nose, though it differs entirely from that organ in function. Others have thought we could trace the resultant ear disease, secondary to obstructive lesions in the upper respiratory tract, to imperfect aëration of the middle ear. Still other authorities have thought that the interference with the circulation in the internal and middle ear by the inflammatory and neoplastic changes in the nose or nasopharynx, was the cause of the secondary disease. While the battle has been fierce and the flow of ink free in this wordy war, it is probable that all are right; that each method plays a part in the production of secondary diseases in the middle ear.

While I have seen many cases where the secondary deafness could be accounted for and the cure understood from the well-known relations of nasal and aural diseases, I have encountered others that are not susceptible of explanation by any of the known facts in rhinology or otology. I wish to report three of these cases, chosen because they are dissimilar in many of their features. They suggest that there is a relation, not yet understood, between the healthy condition of the nose and nasopharynx, and the sense of hearing. In all of these cases there has been a serious and irremedial impairment of the organ of hearing, yet, in all, the ability to hear has been greatly increased by restoring the nose and throat to their normal condition.

Mrs. S., aged thirty-one years, married when sixteen years old, has suffered from diseases of the generative organs since the birth of her first child. She is very nervous, weak and anemic. She suffered from pains in the chest, headache, cardiac palpitation, rapid pulse, and dyspepsia. These symptoms could not be relieved by ordinary constitutional treatment. She was referred to me by her physician, Dr. W. H. DeWitt, for the treatment of the upper air-passages, with the hope of relieving these intractable symptoms, which he believed were secondary to the local disorder.

The patient had marked hypertrophic rhinitis, with a deflected and thickened septum. The thickening was in the right nostril. There was also marked nasopharyngeal catarrh. The right ear was deaf to all ordinary tests She could not hear the watch on contact. She could not hear the conversational voice. She could hear loud voices only as an indistinct noise. She gave a history of this ear as follows: Seven years before, while suffering greatly from her uterine trouble, the ear became inflamed and was intensely painful for several days. The drum was finally perforated; the pain di-

minished with the free discharge of pus from the ear. She had had occasional attacks of acute suppuration in the middle ear from that time. Inspection of the ear showed a cicatricial drum membrane with evidence of old perforations. There was no suppuration at this time. The ossicles were firmly bound together by old inflammatory adhesions.

The condition revealed by inspection was so bad that no attempt was made then or subsequently to improve the hearing by treatment of the ear. The hypertrophic rhinitis was treated by the usual method, and the spur on the septum was removed March 13th, 1894. The headache and neuralgia of the chest which the patient had supposed were all due to her uterine trouble, were entirely relieved within six weeks after this operation. The rapid pulse and cardiac palpitation yielded to the combined effect of the operation and heart-tonics administered internally. The patient began to improve in health and strength, and in a short time felt better, weighed more, and was better able to do her work than she had been for years. About ten months after the operation, she discovered that hearing had returned to the supposed incurably deaf right ear. A careful test of this organ in April, 1895, shows that the patient is able to hear the conversational voice fairly well, and hears the watch, which was not heard on contact before the operation, two inches from the ear.

F. J. H., aged eighteen, had scarlatina when he was thirteen years old. The scarlatina was complicated by purulent otitis media in both ears. The drum membrane and ossicles of the right ear were completely destroyed. In the left ear three fourths of the drum membrane was destroyed, and the ossicles remained bound together by cicatricial adhesions. With every cold the patient caught, there would be suppuration from one or both ears. I saw him first in March, 1894. At that

time he heard a conversational voice one foot, could not hear a watch on contact, and could not hear a whisper at all. There was no appreciable difference in the hearing powers of the two ears. He was about to lose his situation as clerk because of his inability to carry on a conversation with customers in the store.

Examination of the nose and throat showed hypertrophic rhinitis and a large spur on the septum in the left nostril. There was a complicating nasopharyngeal catarrh. After treating the acute inflammation that was present when I saw him, for a few days, I removed the spur and cauterized the hypertrophied turbinated bodies so as to give him free breathing-room through the nose. The left ear was suppurating when I first saw him, but this suppuration readily yielded to the dry treatment. The patient was under treatment six weeks, and was dismissed with the ability to hear a whisper three feet and to distinguish ordinary conversation so readily that he still retains his position as clerk. The first of December, 1894, he caught a severe cold, and with the resultant swelling and inflammation of the nose and throat, his hearing became again seriously impaired. Ten days of local treatment cured this attack, and with the return of the nose to the normal condition, the hearing distance for the whispered voice again became three feet for either ear.

Mrs. F. L. J., aged thirty-five, has been deaf from childhood. I can get no distinct history of the cause of this deafness. She had repeated attacks of acute purulent otitis. In her earlier years she was treated by a number of good otologists who succeeded in checking the suppuration but did not prevent the total loss of hearing power in the right ear. She had been constantly under the care of a competent man for three years before I saw her. She had visited him once or twice a week all this time to have the left ear inflated by the

Politzer method. This inflation gave temporary relief from the tinnitus aurium and improved the hearing temporarily. In spite of this treatment, the deafness was progressive, and at the end of the three years she was worse than at the beginning of this period. Examination of the ears showed the right ear with only a perception of loud sounds. Inspection of the drum showed only a mass of cicatricial tissue, through which nothing could be seen to throw any light on the condition of the middle ear. The left ear showed a badly retracted drum membrane with cicatrices where old perforations had healed. Loud voice heard only one foot, watch not at all, in left ear. Examination of the nose showed a bad hypertrophic rhinitis, and in the right nostril at the junction of the perpendicular plate of the ethmoid with the triangular cartilage, there was an enchondroma with a broad base nearly an inch in diameter and so thick that it completely filled the upper and anterior portion of the right nostril.

As all known methods of direct treatment to the ear had failed to benefit the deafness, I decided to remove the enchondroma and to restore the lumen of the nostril by cauterization of the hypertrophied tissue in the turbinated bodies. The operation was made under chloroform October 11th, 1894. I cut the nasal branch of the ophthalmic artery in the first incision for the removal of the tumor. This complicated very much an operation always difficult to perform on account of the free bleeding hiding the field of operation. I removed the tumor as rapidly as possible, and packed the nose with cotton saturated with McKenzie's styptic solution. Recovery was further complicated by an attack of follicular tonsillitis, which began three days after the operation. The patient was already weakened from loss of blood and from the shock, so the attack of tonsillitis was unusually severe and prolonged. The immediate

effect upon the hearing was of course disastrous. As soon as the patient was able to resume her visits to the office, the hypertrophied tissue in the turbinated bodies was destroyed by the galvano-cautery as rapidly as this could be done without exciting severe inflammation. The patient remained under treatment for four months, and was dismissed with hearing distance for the watch, left ear, of nine inches. She hears the ordinary conversational voice with ease. She had never been able to hear a clock which had been given her as a wedding present eight years before, until after this operation. On awakening one night, she was very much alarmed at its ticking, though she was lying in bed across the room from the mantel on which the clock stood. Up to the present the improvement has continued, and I have no doubt the hearing will be better a year from now than it is to-day.

These three cases present few similar features. There was in all marked nasal obstruction from hypertrophy of the normal tissues and from the growth of abnormal structures. The condition of the ears in all was such as to offer no hope of cure by treatment of the ear itself. All were benefited so they could hear ordinary conversation, the best test of hearing power, by treatment of the nose.

In the first case reported, the ear was never treated, either before or after the operation on the nose, yet, as a result of this operation, hearing is restored to an ear which to all appearances was hopelessly deaf.

In the third case, the patient had been under the constant care of competent men from childhood to mature life. In spite of this care, the hearing power was entirely lost in one ear and so far diminished in the other ear that common conversation could not be heard. Yet, in this case, the hearing power is restored to the ear by restoring the normal lumen of the nostrils. During the

time she was my patient, the ear received no treatment. It might be said the result in these cases was due to the fact that normal respiration and aëration of the middle ear through the Eustachian tube was restored. While this is a possible explanation, I do not believe it to be the true one. In the third case the Eustachian tube had been kept open by constant treatment, yet the deafness was increasing. The tube remaining open, no attention was paid to it while I was treating the nose, yet there was a remarkable gain in hearing power. It certainly will not apply to the second case, where in one ear there was no drum membrane at all and in the other ear only a remnant. The recurrence of the deafness months afterwards when the nose became inflamed and swollen, and the prompt restoration of good hearing power by treatment of the nose, is an additional demonstration of the controlling influence that, in this case at least, the nose has on the power of hearing.

While I do not pretend to explain the influence which brought about the deafness or the cure in these cases, there is a practical conclusion to be drawn, upon which we can act, even if we do not understand thoroughly the theory or the principle on which our action is based. This practical deduction is that no case of supposed incurable deafness is really so unless the nose and nasopharynx have been examined, and treated, if necessary, by a competent rhinologist.

THE STATE'S CARE OF DIPSOMANIACS.

CHAUNCEY P. LANDON, M. D., COLUMBUS.

To invite attention, to secure thought, to demand action, is the purpose of this paper.

Dipsomania is a disease—a lesion over which the victim has no volition, but beyond the power of his self-control; of indefinite recurrence; a periodic insanity—and because of the environments, not amenable to successful therapeutics in private practice. The physician is left helpless because of the want of coöperative helps and imperative restraint.

Its victims are the bitten flowers of intellectual and social gardens. The brightest mentality, and the most ardent heart-pulsations, represent the large majority of the alarming array.

The disease is amenable to rational treatment, and the governments of men are responsible because they do not secure the prevention necessary to redeem the increasing numbers of unwilling victims.

It is not the intention or purpose to-day to inquire into the causation. Whether hereditary or acquired, or both, I do not know. Neither is it the purpose to detail the peculiar pathological and psychological conditions set up, nor the structural changes and nerve disintegration, but to declare that which is believed to be the consensus of the best thought and awakened humanity of the medical profession.

To secure that which in fact may be declared essential, imperative, in the rational and successful treatment of dipsomania, is the object of an institution, or hospital, where safe environments, medical treatment, moral inspiration, physical strength, mental and will powers, and the rebirth of a true manhood may be secured. To give such support and guidance over and beyond the attacks of the peculiar mania, is the demand of to-day.

Science and experimental observation have determined the existence of disease proper. Its involuntry recurrence and phases of periodicity are clearly made. The victim is an irresistible, insane subject of the peculiar trance, oblivious to his acts, and ofttimes unconscious of them afterward. During the attack he is in no way the same actor. But while the culture of all intelligent people has characterized the existence of the disease as irresistible, the courts have held the helpless sufferer responsible to statutory law for acts done while in the trance, or the condition of mental and moral blank. The rulings, findings, charges and verdicts of the courts have been against the maniacal defendant. Besides the inestimable injury to society and to man in his life relations, the courts adjudge him a criminal, and so construe the statutory enactments as to consign him to penal institutions or the gallows.

The disintegrating processes that produce or result from dipsomania are to-day better understood than in the past, and should awaken a new interest in devising a remedy for the future. The courts have struggled with this momentous question, but for its solution they have been unable to determine the differential sane or insane condition.

By the benevolent and humanitarian acts of government many changes and great advancements have been wrought, reflecting the sunlight and life of a quickened and new-born humanity, evincing a clearer understand-

ing of man and his relations to society, and of the great law declaring that each man is the keeper of his brother. Yet, I repeat, in the twilight of the nineteenth century the state has built hospitals and asylums for all other forms of maniacs, for all other classes of the insane—for the dipsomaniac she has provided penitentiaries, poorhouses, and the scaffold. But yesterday the state provided a hospital for the epileptic—for the care and cure of epilepsy, a recognized incurable disease. For this I rejoice, you rejoice. It separates and gives relief to the overfull institutions of the state; it will give needed care and help and good to that class of sufferers. But how much greater the demand and rationality of providing for a much larger class of curable maniacs.

More than a quarter of century ago an appeal was made to this Society for this much-needed and recognized work of science and humanity, but we were complacently told that the lawmakers of the state were not educated to the necessity. May we not hope that such education now has been received?

At one of the sessions of a recent legislature, the members of that body had before them and under advisement and contemplation the creation of a so-called "Keeley Cure" by the state, and the noted Dr. Keeley was to be the Moses who would lead us from the wilderness. Ye gods, what wondrous wisdom!

True, because of the failure of the state to act in establishing an institution for this class, private enterprise, inspired by laudable professional zeal and ambition, has opened an avenue to give help to the dipsomaniac. We have in Ohio at least one institution of excellence and high character, and doing great good. But of necessity this, or like institutions, can have but a limited influence, and are restricted in their work. They are confined to a certain class and few, and cannot extend to the many. The establishment of such institu-

tions by private or corporate enterprise makes an added argument and emphasizes the demand upon the state for action.

The state has been generous, munificent, in caring for her wards, and the profession of medicine ever has been watchful of the needs of the state's wards. The first public provision for the care and cure of the insane of Ohio was the inception and effort of the fathers of this Society, and each advanced movement has been the result of the want made known by the medical profession. I pay tribute to the commonwealth ; I pay tribute to the profession ; my heart pulsates with a laudable exultation that my birth and life-labors have been cast in the noblest State of States, comprising the grandest republic of man—and I hope to see this jewel set in her heart of munificence.

The state's care of dipsomaniacs would result in the reflection of the sunlight of a new life in thousands of homes ; the redemption and preservation of thousands of noble natures, which otherwise would be lost, destroyed; making manifest a truer Christianity, and a more humane and merciful administration of law ; making clearer the pathology and psychological condition of the dipsomaniac ; making the care, cause and the cure of the mania a solved problem.

The highest inspiration, the noblest ambition of the American statesman and of the American medical man, should be the production in America of the best type of manhood and the best type of womanhood in the world.

FRACTURES OF THE SKULL.

EDMUND C. BRUSH, A. M., M. D., ZANESVILLE.

Ten years ago I published a report of ten cases of fracture of the skull. These cases had been treated by immediate operation, by secondary operation, and on the expectant plan. The deductions pointed clearly to the propriety of immediate operation provided any depression could be detected.

Since that time I have seen two cases of supposed fracture and seven cases of fracture of the skull, not including four cases in which death was immediate. These nine cases will be given as fully as time will permit.

CASE 1.—S. B., colored, age about 50 years, was struck on the head with a club. When I saw this patient, soon after the receipt of the injury, he was conscious and suffering considerably from shock. An examination revealed a scalp-wound five inches long, extending upwards and backwards from the inner end of the left eyebrow. On exploring the skull, beneath the cut, a crack was found corresponding in length to the scalp-wound. There was no depression or symptoms of compression or paralysis. The scalp-wound was sewed up, and in a few days the case went from under my care. Four weeks from the time of the injury I was again sent for, and found the man delirious, with a high fever, and in answer to an inquiry regarding pain, he placed

his hand over the cicatrix. I saw him again in a day or two only to find the symptoms aggravated. Going away from home, I did not see the case again until after death, which occurred six weeks from the time of receiving the injury.

The post-mortem examination showed, at the lower end of the above-described scar, a very small opening, about the size of a pin, through which pus escaped. On removing the scalp the crack in the skull was plainly visible. One inch from the lower end of this crack, a second crack branched out, and, extending in a semicircle, again joined the first crack about two inches from the starting-point. Union had taken place, but at the lower end of the fracture there was a small hole corresponding to the one in the scalp and of the same size. This same hole also extended through the covering of the brain. In this region the *dura mater* was thickened and adherent to the brain. The front half of the left side of the brain was bathed in pus. On opening the left hemisphere of the brain, an abscess three inches long and one and a fourth inches in diameter was found, occupying the anterior and a portion of the middle lobes. So far as could be discovered, this abscess did not connect with the exterior of the brain. There was no depression of the skull. The fracture involved both tables.

CASE 2.—T. D., age 22 years, was struck on the head with a bottle in a barroom fight. Skin not broken. This happened between four and five o'clock in the afternoon. No ill effects were apparent, and he was arrested with the other disturbers. After spending the night in prison, he went home in the morning. About noon he became sleepy and lay down. During the afternoon, his heavy breathing attracting attention, an effort was made to waken him, but it failed. When I saw him, with another physician, he was in the arms of

death. He died thirty hours after receiving the blow. A swelling just above the left ear, under which a depression in the skull could be felt, made the cause of death apparent.

On removing the scalp at the post-mortem examination, we found a depressed fracture one and one-half inches long by one-half inch wide. Some irregular pieces of bone, corresponding to the opening in the skull, were driven into the brain. Upon removing the calvarium we found a large oval-shaped clot of blood occupying the left parietal region. This clot measured four inches from front to back, and extended from the crown of the head down into the middle and posterior fossæ of the skull. It filled a pint cup two-thirds full. On further investigation we found a small sharp-pointed spicula of bone sticking into the middle meningeal artery. This, no doubt, explained the delayed symptoms of compression. The blood had slowly but steadily leaked out from around the piece of bone and gradually produced the large clot. Had surgical help been called in time and the head operated upon, a life might have been saved. This was a case of traumatic ingravescent apoplexy.

CASE 3.—F. K., age 15 years, was found in an unconscious condition, lying on the floor of a manufacturing establishment. He died a few hours after, without regaining consciousness. The attending physician found no cause of death. In making the post-mortem examination I found, upon a superficial examination of the head, a large depression in the skull at the upper portion of the left temple. The removal of the scalp—which was not cut by the injury—exposed a comminuted depressed fracture of the skull, circular in form, and as large as a silver half-dollar. The question arises, Would an immediate discovery of the injury, followed by a prompt removal of the depressed pieces of bone, have saved life?

CASE 4.—L. K., age 4 years, received a kick from a horse. The wound in the scalp began just above and at the middle of the right supra-orbital ridge. It extended upwards and somewhat outwards for a distance of three inches. The horse had just been shod, and had buried the toe of the shoe in the skull. The fragments of bone were driven into the brain, lacerating its coverings.

This case was seen at once. Unconsciousness was complete and the shock was severe. Without delay the sunken pieces of bone were removed, along with considerable brain substance. The scalp was so bruised and lacerated at the upper end of the wound that immediate union did not take place at this point. Before the head was entirely healed, the boy fell from a porch and broke his left thigh. He recovered nicely from both injuries, and shows no indications of either, excepting the scar on the forehead. At no time was there any paralysis, and in twenty-four hours consciousness had returned.

CASE 5.—E. T., age 15 years, received a large irregular compound fracture over the left forehead, caused by a blow from a stone. For a moment the boy seemed dazed, but did not lose consciousness. The *dura mater* was lacerated and some brain tissue lost. There was no paralysis.

A few hours after the injury an anesthetic was given in order to remove the depressed pieces of bone. The patient was nearly ready for operating when he stopped breathing. Artificial respiration, electricity and injections of stimulants were resorted to. After nearly an hour's work the boy would breathe without assistance. The operation was postponed until the next day.

Before making the second attempt a hypodermic injection of morphine and atropine was given, and no trouble ensued. The pieces of bone were removed, and

in a week the patient was sent to Dayton, O., and into the care of Dr. C. H. Humphreys, of that city. The Doctor writes me as follows: "The boy recovered after some delay in getting rid of a small fungous pulsating growth from seat of injury, which when removed was disposed to return. After deep excision of it and cauterization it closed over."

CASE 6.—F. D., age 6 years, was run into by a horse and thrown head first against the end of a fence-rail. The tapering but blunt end of the rail penetrated the crown of the head, to the left of the median line, for over an inch. This occurred in the evening, and I saw the boy the following morning. He was then conscious and had no pain. Paralysis of the right arm and leg was complete, but he had control of his bowels and bladder.

After cleaning out the fragments and destroyed brain-tissue, there was a deluge of blood, seemingly from every part of the cavity. A prompt stuffing of the cavern with gauze stopped the flow and warded off what looked like impending dissolution. A relative of the boy gave a good idea of the size of the hole by saying "you could drop a hen's egg into it." The gauze was removed in three or four days, and no further trouble had from hemorrhage.

The scalp had been so lacerated by the blunt end of the rail that it could not be made to completely cover the opening. This healed by granulation, but the brain not having much opposition protruded, in time, through the skull, but under the scalp. This tendency to hernia was obviated by making a round lead plate, about three inches in diameter and one-half inch thick in the middle, and gradually tapering to the edges on one side; the other side was left flat. The flat side was applied to the hernia, and the lead so incased in a bandage as to hold it there. This was worn for several weeks and

cured the hernia. The paralysis gradually left, and the last report from the boy was to the effect that he was in school, bright and active as ever.

CASE 7.—S. S., age about 40 years, received long scalp-wounds across the occiput, across the crown, and on the left forehead. They were probably made by a pick-handle. Under the wound on the forehead there was a fracture of the skull.

I saw this man within an hour after the receipt of the injury. He had bled profusely, and was partially conscious, with no paralysis. As he had been drinking, it was hard to tell where the effects of liquor left off and the effects of the injury began. The depressed pieces of bone were removed, and the *dura mater* found to be only slightly cut. The hole in the skull was circular, and would admit a silver quarter. All of the cuts healed without suppuration, and the case made a speedy recovery.

CASE 8.—S. R., about 22 years of age, was found lying in an unconscious condition alongside of a railroad track. The only evidence of external injury was a large "bump" on the top of his head. Both pupils were contracted, paralysis was complete, and the indications pointed to a fracture of the skull, although none could be detected by external manipulations. A long half-circular incision was made around the posterior part of the swollen portion of the scalp. A large "scalp-lock" was raised, but no fracture found.

For ten days this man remained unconscious, with paralysis of the extremities, bowels and bladder. At the end of that time he began to improve, and so continued until he was up and out. Noticing that his mind seemed dull, I spoke to a friend regarding it, and attributed the mental deficiency to the injury. The friend replied that "he had as much sense as he ever had — he never had much."

The incision made in this case proved, so far as external appearances could, that the conditions present were not due to depressed bone. There was evidently compression either from within or without. The history of the case, the complete paralysis present, along with the other symptoms, made me expect to find depressed bone beneath the swollen scalp. This point would still be in doubt but for the investigation made.

CASE 9.—J. M., age 16 years, was struck just above and a little posteriorly to the left ear with a billiard-cue. This happened at noon on February 11, 1895. The primary effects of the blow were slight, but five hours afterwards, while on his way home, the boy became semi-unconscious, and was helped home and into bed. He was soon soundly sleeping, and the family thought it due to drink. At three o'clock that night the patient's bedfellow was disturbed by the loud breathing and tossing about of the boy, and called the lad's father. The father knew that the boy had been hit, and at once connected his condition with the blow. Dr. J. C. Crossland was sent for, and arrived at five in the morning. The following were the conditions present as reported by the doctor: Left pupil dilated, pulse irregular, heart's action violent, breathing rapid and stertorous, with puffing of the cheeks on expiration, frothing at the mouth, with delirium and frequent epileptiform seizures, profuse sweating, temperature 103°.

At eight o'clock I saw the case with the attending physician, and continued to see it almost daily for a month. The only local evidence of injury to the head was some swelling and discoloration of the scalp above the left ear. Dr. Crossland raised the scalp at this point during our first consultation, but there was no injury, externally at least, to the skull. It was evident that inflammation had begun inside the skull. The

coma was increasing, the restlessness continued. The head was rolling from side to side, with a continued effort to burrow in the pillow. By night the right pupil was contracted and immovable. The temperature was 105°. The next or third day the pupils became dilated, but otherwise there was little or no change. The bowels and bladder were not controlled from the first or for three weeks following. The symptoms on the fourth day were somewhat better, but on the fifth day his condition became aggravated, with paralysis of the left side of the face, and the left pupil drawn outwards. The evening temperature was 106½°. On the seventh day he had several severe chills. On the tenth day it became evident that the inflammation had followed the optic tract into the left orbit. On the fourteenth day the ball was opened and the distention relieved by evacuating the pus. The eye healed, leaving a good stump for an artificial eye.

Three weeks after the injury symptoms of pyemia developed, followed by abscesses on the right ankle, the left and then the right elbow, and hip. These were opened without delay. The delirium continued for three weeks, and then gradually subsided, until at the end of six weeks the boy was rational. The abscesses all healed, and the boy steadily but slowly improved. The emaciation was extreme; from a stout rugged coal-digger, he had gone down to a living skeleton.

Eight weeks after the injury, and just as the attending physician was about to discharge the case, an abscess formed at the lower portion of the right lung. Some bulging of the intercostal spaces beneath the scapula was noticed, and the pus let out at that point. The boy also coughed up a large quantity. This gradually subsided, and now, three months from the date of the injury, the patient is fast gaining health and strength, with his mind unimpaired.

The foregoing cases present many different phases of fractures of the skull and the results therefrom. All of those operated upon recovered, and in each case the operation was performed without delay and without any regard to the symptoms, good or bad, present. The one idea was to remove all pieces of bone that impinged upon the brain, whether the brain resented the pressure or not. Due attention was given, of course, to the physical condition so far as it was influenced by shock. The idea that "in children the toleration of the brain to pressure is such as to justify delay in elevation of the fragments, unless alarming symptoms supervene," is probably true, but what is to be gained by waiting? Prompt action will probably prevent alarming symptoms and dangerous secondary complications.

In the operations reported, the trephine was not needed. With an elevator and a pair of sequestrum forceps, much can be accomplished. This is not said in the way of depreciation of the trephine. It is an instrument of untold value.

The anesthetic used was the A. C. E. mixture.

There is no need of repeating text-book literature on rules and methods for operations on the skull. How to prepare the patient for the operation, how to operate, and how to treat the cases after operation, are familiar matters to all. There is, however, a new idea being advanced or experimented with. Perhaps it might be proper to say that an old idea is being revived in a new form. To find some hard substance to replace the bone removed, has been a source of much thought in the past, and it is likely that the near future will solve the problem. This may be Senn's decalcified ox-bone, it may be disinfected celluloid plates, or it may be the removed pieces of skull, or even transplanted pieces of skull.

In looking over the literature on the subject under consideration, I was forcibly struck with the following,

found in Bell's Surgery, Volume III., edition of 1796 — nearly one hundred years ago:

"In the management of fractures of the skull attended with depression, the indications are:

"1. To discover as exactly as possible the site, the course, and the full extent of the fracture.

"2. To obviate the effects of the injury done to the brain, by elevating or removing all the depressed parts of the bone.

"3. To endeavor to complete the cure by application of proper dressings, and attention to the after-treatment."

FRACTURES AT THE BASE OF THE SKULL, WITH SPECIAL REFERENCE TO EYE SYMPTOMS.

C. W. TANGEMAN, M D.,

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Fractures at the base of the skull are of especial interest to the physician of to-day, because of the advance in surgery. These cases were looked upon as necessarily fatal. so much so that when a patient with a severe injury to the head died, it was taken for granted that there must have been a fracture at the base of the skull (and this opinion was verified in nearly all of the cases in which a *post-mortem* was obtained), while in the case that recovered, the diagnosis was looked upon with suspicion.

Fracture of the base of the skull has always occurred, and these cases have been reported from the time of Hippocrates to the present day.

While the general subject of fracture of the skull is without a doubt interesting, we wish to limit our remarks as much as possible to fracture occurring at the base of the skull, and give special attention to the frequency of eye complications, as well as the value of the eye symptoms in determining the seat and extent of the injury.

Formerly the eye complications in severe head injuries were accounted for by an injury to the supra-orbital nerve or the infra-orbital nerve. There was a great deal of mystery about these cases. A great many signs and symptoms were accounted for when Berlin published his investigations of the 126 post-mortem examinations made by Van Hölder. Of these 126 cases of fracture of the skull, it was shown at the autopsy that the fracture involved the base of the skull in 88 cases, and what is of still greater interest is that the roof of the orbit was implicated in 80 out of these 88 cases, 90 per cent., and the optic foramen in 45 cases, or nearly 60 per cent.

The frequency of the involvement of the orbit, especially its roof, and the optic canal in fracture of the skull, has caused no little study and investigation. The optic canal is situated at the extreme apex of the orbit in the lesser wing of the sphenoid bone. The orbital walls are strongly built yet light, and so arranged that two or more bones enter into the formation of any one of its walls. The sutures are deeply serrated, so that it rarely or never occurs that a fracture extends in a line of suture.

The most plausible explanation that I have seen for this fracture is this: The frontal bone unites with the nasal, superior maxillary, lachrymal, and ethmoid bones by a continuous line of suture until the lesser wing of the sphenoid is reached. At this point the line of suture bifurcates, forming an obtuse angle, and quite near the apex of this angle is the optic foramen. The jar made by a blow would find its weak point along the line of suture, and the first resisting point would be where the suture bifurcates, near the optic foramen, and as a consequence of the greater movement following one of the bifurcations, the bone gives way under the unequal strain.

This injury occurs in a number of ways:

a. By direct injury, as by a blow or fall on the vertex or side of the head, in which the rent in the bone extends from the point where the blow was received to the base of the skull.

b. By *contre-coup*, where any part of the head may receive the blow, and the damage or rent in the bone found only at the base of the skull.

c. By the impact of the spine against the condyles of the occipital bone, as when a person falls from a great height and lands on his feet, such an accident as this may produce a variety of results.

That these cases are of extreme interest goes without saying, not so much because of the damage to the bones as from the frequent complication—injury to the brain, its coverings, or near-by special organs.

The connection of the eye with the brain is a close one: First, the optic nerve with its coverings and blood-supply, and second, the nearness of the eye to the brain, and the large number of cranial nerves that leave the brain for the orbit.

The damage to the eye may be due to a small spicula of bone that has become displaced and presses on the brain-matter or some nerve-trunk before it leaves the cranium; or it may be due to concussion. Again, a blood-vessel may be pressed upon or torn across by the sudden tension on it, or by a sharp spicula of bone, and by the escape of blood into the brain or some of its many spaces, cause death by pressure on some vital center. The forward third of the brain fits closely to the bones of the skull, while the posterior two-thirds rests on a water-bed, as it were (the arachnoid fluid), which acts as a very great protector to this portion of the brain. A blow to the back of the head would, in a large majority of cases, cause a lesion at the anterior third of the brain. When the injury is to the side of the head, there may be a complication by the fracture extending through the

temporal bone and involving the ear. This is manifested by a hemorrhage or a watery discharge (arachnoid fluid) from the external auditory meatus.

DIAGNOSIS.

The success of cerebral surgery no doubt depends largely on the ability of the physician to locate the seat of the damage. Too often the examination of the eye is confined to a simple glance at the disc, while that symptom alone may not mean anything. We must aim at locating the seat, as well as the extent, of the damage.

VISION.

We might make three classes of these cases:

a. Where the loss of vision follows immediately after the injury, is complete, and remains so permanently. This is caused, either by a severing of the optic nerve, or a rupture of the blood-vessel that carries blood to the interior of the eyeball.

b. Where vision is partially or completely lost, but where there is a partial or complete recovery of vision in course of time. Here we have to deal with hemorrhage, either into the sheath of the optic nerve, or where the blood-clot can press on the trunk of the optic nerve.

c. Lastly, the cases where blindness or diminution of vision follows some time after the injury, brought on by an inflammatory action, as in meningitis or cerebritis.

If the blood is absorbed before the conductability of the individual nerve-fibre or collectively the nerve-trunk has been destroyed, vision is restored. The absorptive power is greater in the brain or at the base of the brain, than in the optic nerve sheath; that condition, coupled with the fact that all parts yield more readily in the cranial cavity, makes hemorrhage into the optic nerve more grave than when the blood flows into the brain.

Allow me to briefly recall to your memory the course of those optic fibres that convey visual impulses. On leaving the eye the optic nerves extend backwards to the chiasm, where they decussate in such a way that the fibres coming from the nasal half of the left retina unite with the fibres from the temporal half of the right retina to form the right optic tract. The left optic tract similarly derives its fibres from the left halves of the two retinæ, corresponding of course to the right half of the field of vision. Each optic tract crosses the ventral surface of the crus, then ascending under cover of the temporosphenoidal lobe sweeps round the crus and ends in the external geniculate body, the pulvinar, and anterior corpus quadrigeminum. Pathological evidence in the human subject tends to show that the visual area occupies the cortex of the cuneus, the lingual lobule and the superior occipital convolution. Right hemianopia may then be due to a lesion in the left cuneus, left optic radiation, left pulvinar and its neighborhood or left optic tract.

A consideration of the course of the nerve-fibres that are concerned in the reflex pupillary movements for light suggest the method of determining the seat of the lesion. The afferent fibres for this reflex are to be found in the optic tracts, and then they can be traced in the wall of the third ventricle to the anterior part of the nucleus of the third nerve, which is situated in the floor of the aqueduct of Sylvius. The efferent constrictor impulses are conveyed by the third nerve to the ciliary ganglion, and thence by the short ciliary nerves to the sphincter pupillæ. If any link in this chain be broken, the reaction of the pupil to light fails to show itself. When the left optic tract is destroyed in any part of its course, we find on examination right hemianopia. If now a beam of light is concentrated by means of a convex lens (or concave mirror) on the left (blind) half of the retina, no

pupil reaction is observed, as the afferent impulses for the reflex contraction of the pupil have been blocked by the lesion. This test requires very delicate manipulation in its performance, for if any light is allowed to fall on the right half of the retina the pupil at once contracts.

In a large percentage of these cases the patient is found unconscious, and may remain so for weeks, therefore difficult to test. The ophthalmoscope may show beginning atrophy as early as the second week after the injury (Leber). Occasionally a hemorrhage is seen into the vitreous and retina. If the hemorrhage is into the subvaginal spaces, there soon follows a peculiar pigmentation of the disc (Knapp). This sign comes on gradually; vision gradually grows less as the blood-clot increases in size, or as the pressure increases on the nerve fibres.

In cases where the injury to the optic nerve occurs before the blood-vessels enter it, simply atrophy results, while the circulation remains normal. If the injury to the optic nerve occurs between the entrance of the blood-vessel and the eye, atrophy of the retina occurs with later pigmentation. If the injury is close up to the eyeball, there is extensive extravasation of blood on the papillæ and in the retina.

SYMPTOMS.

The patient is picked up unconscious in a large percentage of these injuries, lasting from a few hours to three weeks. There may be external signs showing the site of injury, but quite often there is not as much as a trace of an accident. In some few cases the patient dies without recovering consciousness, but in the majority of cases the patient recovers consciousness, which remains.

The first thing the patient complains of, as a rule, is his vision. He sees double, or he sees only one-half of

objects—hemianopia; the damage is one-sided, behind the decussation, or there is complete blindness of one eye and the damage is anterior to the decussation. Possibly there is complete blindness of both eyes; then the damage is extensive and probably in the region of the chiasm.

With these symptoms on the part of the eye, there may be a paralysis of other cranial nerves. Not infrequently the condition of the fifth nerve furnishes very important signs. If the tactile sense of the eyeball and the region inervated by the first division of the fifth nerve only, is disturbed, especially if one or other of the motor nerves are involved, the damage is about the apex of the orbit. If the entire nerve is affected, that is good proof that the injury is deep-seated.

COLOR SENSE.

In some few of these cases the color sense is disturbed. The center for color seems to occupy the most inferior part of the occipital lobe and probably part of the lingual lobule. In nearly all, if not all, of these cases the disturbance of vision is on the side of the injury The pupil is, as a rule, dilated because of some interruption to the impulse that causes the sphincter muscle of the iris to contract to the stimulus of light.

ECCHYMOSIS.

Ecchymosis, or blood pouring into the soft parts, tissues of the orbit, is a positive sign of fracture at base of the brain; unfortunately it is not present in all cases.

In the case where there is a contusion of the soft parts of the face, there is likely to be an effusion of blood into the connective tissue of the lids and surroundings. This comes on immediately after the injury; but in ecchymosis of the orbit caused by fracture at the apex, the

blood does not appear about the eyeball or eyelids until days after the injury. This is because of the anatomical arrangement of the orbit and its contents.

When the hemorrhage occurs under the periosteum (which is easily separated in the orbit), it crowds the eyeball to one side—curtails the movements of the eye. When very extensive it may crowd the eye forward so as to produce an exophthalmus, and produce immobility of the eyeball.

When there is bleeding from the nose and mouth not caused by injury to the soft parts, it indicates the fracture of the roof of the nasal fossæ, possibly a rent through the ethmoid or sphenoid. In all of the cases reported of hemorrhage into the sheath of the optic nerve, there was present as the cause a fracture extending through the optic canal.

Vomiting of blood is caused by blood trickling down the posterior nares and pharynx, and then being swallowed. Bleeding from one or both ears, in severe injury of the head, if free and constant, with pulsations, means fracture of the base of the skull.

It is claimed by recent observers that when the discharge is thin and of a watery character, and continues for days, that it is positive evidence that the fracture extends from the base of the brain through the internal auditory canal, and that the fluid that escapes is cerebrospinal. Much stress is laid on this sign as a diagnostic and prognostic point. It indicates the gravity of the injury. It is claimed that all of these cases terminate fatally.

Authentic cases of fracture of the base of the skull have occurred in which neither vision nor the eye was disturbed in any manner immediately after the injury, yet later, inflammation of the brain and its coverings set in which destroyed vision and finally life.

PROGNOSIS.

It is difficult for the oculist to say much about the prognosis in these cases, because it may be claimed that he sees only the lighter cases, but so far as vision is concerned it is undoubtedly more favorable when the pressure caused by hemorrhage is at the base of the brain, about the chiasm, than when it is into the sheath of the optic nerve. The sheath is unyielding, especially about the optic canal, and irreparable damage is soon done to the nerve. If the optic nerve is cut off by a spicula of bone—loss of vision is total and permanent. The same can be said of the central artery of the retina.

TREATMENT.

It has been claimed that these cases all die—only the exceptional case recovers. A large percentage of the cases end by secondary complications, inflammation of the brain. It is seldom that the oculist sees cases of this kind except in consultation, and then rarely immediately after the injury.

Rest in these cases no doubt plays an important *rôle.* A hemorrhage continues, or starts anew after exercise, mental or physical; it causes congestion of the brain, just the condition we want to avoid.

Hilton mentions a case where a man was thrown from his horse, and, aside from being thoroughly shaken up, complained little and went about his business; thirteen days later he felt indisposed, and applied at Guy's Hospital, and developed a fatal case of meningitis. A post-mortem showed that he suffered a fracture at the base of the skull at the time of injury.

We want to assist in the removal of pressure, whether it be due to a blood-clot or a spicula of bone—in the former instance by internal medication and in the latter case by operative interference. It appears to me the

only way that we have for getting at the base of the brain is through the orbit. Many of the eyes are lost or damaged on the side of the injury, and in a large proportion of these cases we find the damage at the apex of the orbit. Could the eyeball and contents of the orbit not be removed? Better even sacrifice a good eye, if we could get at the base of the brain and save life. A small spicula of bone may be pressing on some nerve-trunk or set up a fatal meningitis, and we must devise some means of getting at these cases.

Judging from the progress of cerebral surgery in the past, I think we can safely say that in these apparently hopeless cases we are justified in using what appears even now as desperate means.

COMPLICATIONS AND SEQUELÆ OF EPIDEMIC INFLUENZA (LA GRIPPE) AND THEIR PROPHYLAXIS.

A. H. HEWETSON, M. D., ST. CLAIRSVILLE.

By the title assigned to this paper we are confined in our treatment of the subject to the complications, sequelæ and prevention of la grippe. It is therefore not germaine to our subject, and would require more than the allotted time, to refer to the history, symptoms and treatment of the disease.

To properly apply what we desire to say, it is necessary, however, to refer briefly to the general nature of influenza, and particularly to its pathology as expounded by the best writers and teachers. A recent writer defines influenza in the following terms, "A specific epidemic, self-limited, febrile disease, probably dependent upon a bacillus or microbe."

In common with almost all other epidemic diseases, influenza has been in later years subject to the investigation of the noble band of pathologists and bacteriologists who have accomplished so much for scientific medicine. Pfeiffer, as early as 1889 or 1890, after very careful investigation described specific bacilli found in pure culture in bronchial secretion in uncomplicated influenza. They were absent from the sputum of ordinary bronchial catarrh, pneumonia, and pulmonary tuberculosis.

I do not propose to follow the development of this theory, as I believe all of you are more or less familiar with the claims set forth in its behalf. It cannot be admitted that the facts claimed are positively proven; nevertheless, in view of the brilliant discoveries of the past decade, we are justified in accepting their conclusions as authoritative. According to this theory the bacilli or microbes enter the system principally by the mucous membrane of the respiratory organs, and by multiplication and secondary causes accomplish all the phenomena belonging to the disease we are considering.

It is thought by some that numerous bacilli or microbes differing in their nature unite in producing the complicated symptoms and the sequelæ which are met with so frequently. Others believe the different complications may be explained by the difference in situation, environment and constitution of those affected. Each patient gives the morbid element a different setting and surrounding. We have all noticed the effect produced by change of combination. The chemist by slightly varying the elements of a mild and innocent substance, converts it into virulent poison. The artist adds a few touches of the brush to the canvas, and how different the picture! So in disease; one patient is young, another quite aged; one of strong constitution, another always delicate; some live carefully, others recklessly; each patient presents different physical conditions, and when attacked by disease no two manifest the same set of symptoms.

Apart from all theory, experience proves that there is a marked difference between the same affection occurring as a separate disease and as a complication with the grip.

Of complications, undoubtedly pneumonia and bronchitis are more often present, but there is a dispute amongst observers as to which of these occur more fre-

quently. A recent French writer believes that the complex pathology of these chest complications is explained by the presence of different microbes in different forms. There are thus congestive, inflammatory and suppurative pneumonias; those produced by pneumococci and those caused by streptococci.

It is an admitted fact that the virulence of micro-organisms is raised to the highest degree in all forms of influenza and its complications.

I need not dwell long on the management of these particular chest complications. The important duty is to remember the depressing nature of the original affection, especially remembering the importance of sustaining and energizing the cardiac and respiratory nerves. In my limited experience I have found nothing that can compare with strychnia and digitalis—full doses of digitalis, and much larger than the ordinary dose of strychnia. We are too timid in our dosage of strychnia.

In those cases where the influenza is still active, I add to the above fluid extract aconite in small doses. This may appear heterodox, but I believe it to be a sensible combination. Of course phenacetin and its companions of the coal-oil group, with codein, may be continued in some cases from the original influenza to the complicating pneumonia and bronchitis. An early recourse should be had to cod-liver oil and syrup hypophosphites or similar tonic remedies.

Pleuritis is a complication of la grippe which is not very frequent, nor is there any particular management required different from the ordinary disease, except to remember the nature of the previous trouble.

A more frequent complication, as well as more troublesome, is pleurodynia. In our part of the State it has been of very frequent occurrence the past season. The pain is often severe, resembling pleuritis or pleuro-pneumonia. Pressure along the course of the intercos-

tal nerve will promptly locate the trouble. As it is usually located on the left side, great alarm frequently results from the feeling that the heart is or would be involved. It is not necessary to speak of special forms of treatment for this complication. It is one of the neurotic forms of the disease, and yields to the general management which we recommend further on for these conditions. One important duty of the medical attendant is to relieve the mental anxiety by assurance that the heart is in no danger.

At certain times in some epidemics rheumatism is a complication. Da Costa speaks of an experience of this kind occurring to him during the epidemic of 1891 and 1892.

Disorders of digestion are frequently complications of influenza. They constitute a very troublesome form of the disease to the physician, and are the source of exquisite suffering to the patient. Fortunately, however, the stomach is, as a rule, only functionally affected, the disturbances of digestion being due largely to the effects of the general disease upon the nerve centers. Their treatment necessarily connects itself with the management of the nervous complications and sequelæ. We will not take time to consider them separately, and will only remark in passing that it is the duty of the physician by the use of the stomach-tube and the most painstaking examination to determine the true state of the digestive functions.

Of all complications we must view those having a nerve origin as the most important and perplexing. Post-mortem examination of a patient who had died of influenza revealed serious injury to the brain. Althaus, of London, refers to results of a series of eleven post-mortem examinations: "In every case intense hyperemia of the *pia mater* at the base of the brain was present. The arteries were distended, and congestion of the brain

and spinal cord was increased. In two cases by Furbringer the autopsy revealed capillary emboli and hemorrhagic foci in the lobes of both hemispheres, involving the white and gray substance." Mills, of Philadelphia, classifies the organic nervous lesions occurring in the wake of influenza in the following order: neuritis, meningitis, myelitis and cerebritis. He considers "no single affection so common as neuritis, occurring in every form as to location and diffusion." By some authors meningitis is said to cause more deaths in influenza than heart-failure.

In considering the sequelæ of la grippe with reference to the nervous system, we meet a most difficult question, which I shall not attempt to discuss in detail. In some obscure manner, by many complex influences, the essential virus, bacillus or microbe of the influenza undermines the nerve centers, weakens the nerve force and exhausts the vital energies, disturbing the functions of important organs.

To name, number, classify and explain the nervous consequences of la grippe is a task too great to be undertaken. While their number and variety is legion, still we believe a careful consideration will show that they result from the exhaustion of the power of the nerve centers, due to the effect of the essential poison upon nerve structure. Cephalalgia, trigeminal neuralgia, insomnia, loss of memory, cardiac weakness, indigestion, in a word, functional derangement of all the organs—these can in a vast majority of cases be traced back to a neurotic origin. If a careful examination does not reveal any central cause, then the task may be wonderfully simplified by regarding all as forms of exhausted nerve force or vital power.

While scientific pharmacy and experimental therapeutics are giving us new remedies monthly, it is our duty to scrutinize them closely and give our patients the benefit of whatever is trustworthy; but at present I do not

believe we can do better than place our main reliance upon friends of other years, strychnia, iron, quinine, cod-oil and phosphates.

These cases in their multitudinous characters will afford opportunity for the largest experience, the most profound learning and soundest judgment. There is change of location, outdoor life and exercise; there is the rest treatment, massage and electricity. I wish to name one simple remedy I have found of great benefit, especially in the case of patients in advanced life when the waste products are becoming more and more retained; in these cases I urge the patients to use hot water freely—to drink all the stomach will retain. It is frequently surprising how soon improvement appears.

The last division of the subject, "prophylaxis," will detain us but a few moments. Having applied the teaching of modern scientific hygiene in an intelligent manner to his case, and given careful attention to the mucous lining of the nose and throat, the medical attendant has about performed his duty. For a scientific prophylaxis we must look to the faithful pathologist and bacteriologist. We have good grounds to hope that at no very distant period the true nature of epidemic influenza will be so settled that in common with many other epidemic diseases it will have to yield to the control of scientific medicine.

DISCUSSION.

DR. FULLERTON:

The term "grip" is undoubtedly of American origin. "La grippe" is simply French for "grip." It originated in the United States in the forties, went to France as "the grip," the French seized it, and it came back to us as "la grippe." Now the profession and largely the laity have accepted the French name, but I stand by the American term—the grip.

As to the disease, I think there is no doubt as to its microbic origin. There is not that evidence which

would have been deemed necessary some years ago; but there is proof that, after the discoveries of the germ-causes of so many other diseases, should be conclusive, I think, to reasonable men.

A remark about the character of the epidemic in the different years of its prevalence, seems to be not out of place. I should say the typical disease we had in Ohio in 1889-90. Since then it has grown from year to year more decidedly atypical. During the past year I have rarely seen a typical case of grip.

In regard to complications—and that is the matter to which really this discussion should be limited—I think the doctor has spoken of the most of them. One of the most obstinate cases of brachialgia I have ever seen was undoubtedly of this origin. I have seen several cases of sciatica that were very obstinate, as the result of this disease. Perhaps some of you have seen other neuralgias, in which the origin was to be traced to influenza. In regard to the treatment of the complications and sequelæ, this of course merges into the treatment of the disease.

As to the treatment of the disease generally, that by the tincture of aconite, one or two drops every hour until symptoms are mitigated, I think well of. It will quiet the pulse, reduce the temperature, and relieve the catarrhal symptoms about as well as any of the new remedies.

Dr. Whittaker, in his very valuable work on the practice of medicine, mentions salipyrin as almost a specific. Whether others have found it so, I do not know. In my own practice it has been no more prompt to control than other remedies commonly used: Phenacetin, the so-called antifebrin, or acetanelid, aconite, and the bromides.

DR. CALDWELL:

One complication of grip that I would like to mention, that has occurred in my practice and been the most disastrous complication I have had to deal with, is the tendency of old people to take on degenerative processes. This has not occurred so often in the last year or two that we have been having the grip. And I would agree with the last speaker, it has become a

rather popular name, and as physicians we are prone to use the term somewhat recklessly.

DR. NORTH:

I have seen within the last few years quite a number of cases of influenza — that is, the form of grip called influenza — attacking the respiratory tract. I believe it arises from the presence of a micro-organism, and this micro-organism develops or generates a ptomaine, and this ptomaine enters the system and affects the ganglionic system. Why it affects one ganglionic system in one person and not in another, I cannot explain. Sometimes it affects the celiac axis and sometimes other ganglia.

As to treatment, I want to protest against the use of quinine in influenza in any form. The paper read gave an account of post-mortem examinations where hyperemia and inflammation had taken place in the membranes of the brain. I believe I have treated a number of cases of deafness due to quinine given in influenza. It is one medicine that should never be given in influenza. It causes hyperemia and inflammation of the brain. If you study the cases which go on to insanity, you will find that some of them have been treated with quinine. I have used in these cases a combination of salol and phenacetin. It has acted almost as a specific.

THE EARLY RECOGNITION OF CARCINOMA OF THE CERVIX.

HUNTER ROBB, M. D.,

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In the paper which I shall read to-day I cannot boast of any great amount of originality. All the work that has been done of late years upon carcinoma, although it has given us a great deal of additional knowledge as to the pathological changes which occur in the course of this disease, has not as yet taught us the ultimate cause for its existence.

All the vaunted remedies which have been tried, some without harm but many more with the most pernicious results, from the Canadian pine which seemed when first tried in the hands of good men to give almost miraculous results, down to the various caustics with which innocent patients are still tortured by charlatans who profess to know everything, or by ignorant practitioners who ought to know at least something—all have been laid aside by the best authorities, and it is generally allowed that the only chance of complete cure lies in the extermination by means of the knife of all the new growth. But we know to our cost, that although in many cases we are able to take away the greater portion of the growth and thereby afford the patient comparative comfort and give her a respite for weeks, months or

years, yet if the smallest portion of the tumor or of a metastasis be left, a return of the disease is absolutely certain.

In what way, then, have we made any advance, or are we in the same position as we were twenty years ago? It would indeed be disheartening if all the work that has been done is to go for nothing, and although the number of cases of carcinoma is still considerable in our mortality statistics, the death-rate has undoubtedly been much diminished of late years.

To what, then, can we attribute this progress? First, to our better technique, which has rendered capital operations less dangerous in themselves, but secondly (and this is the point which I wish to illustrate to-day), we are beginning to save lives because we have learned to recognize the disease in its earlier stages, while it is still possible to remove all the new growth.

The cases which I intend to speak of to-day are those of epithelioma of the cervix uteri. Cancer of the cervix is one of the commonest of the severe diseases met with in gynæcology, and according to our present statistics occurs more than fifty times as often as cancer of the corpus uteri; while as to the etiology of corporeal cancer we can say nothing, since it comes alike to the married and unmarried woman, of cancer of the cervix we can absolutely affirm that it is intimately connected with the bearing of children or with miscarriages. Taking the statistics of a large number of cases it was found that the average number of children borne by each patient was four.

If the cancer be recognized before it has obliterated all the ordinary landmarks, we shall frequently notice more or less laceration of the cervix. Is it not more than probable, then, that in the lacerated cervix with infiltration and eversion of the lips we have a direct prolific cause of cancer? Dr. Howard A. Kelly, a year or so ago,

said that he had seen only three cases of cancer of the cervix in virgins, and that in one of these there had been laceration of the cervix from forcible dilatation.

Schroeder distinguishes three forms of cancer of the cervix: (1) the superficial cancroid of the vaginal portion, (2) carcinoma of the mucous membrane of the cervix, (3) cancerous nodule of the cervix.

The first of these may develop from apparently benign papillary growths, and may exist for a long time under the form of polypoid structures or superficial ulcerations. In the second form the pathological process begins under the cylindrical epithelium and grows into the submucous tissues. The third form begins as a nodule of the cervix which has developed as a circumscribed tumor underneath the mucous membrane, the latter showing at first no signs of malignant disease. As the tumor grows, however, it disintegrates internally and finally perforates the previously intact mucous membrane; then, but not till then, we have loss of continuity of the surface, and an ulcer which would lead even the most unskilful to suspect the existence of a carcinoma.

Extension takes place in all forms in one of two ways: (1) by contiguity — that is, by gradual infiltration of the surrounding tissues, or (2) the virus can be carried to any portion of the body through the lymphatics and give rise to metastases.

I think it will generally be conceded that the diagnosis of carcinoma of the cervix is generally easy after the disease has reached a certain point. In the first place the symptoms, although not always definite, are generally sufficient to arouse our suspicion. The three most important ones are (1) protracted hemorrhage, (2) excessive secretion, and (3) pain.

But as a matter of fact carcinoma of the cervix can exist for a long time without giving rise to any particular symptom, and before all I would insist that pain does

not generally appear until the process has invaded the tissues surrounding the uterus.

Now it is well known that the taking away of these tissues so that every metastasis can be removed is an exceedingly difficult and uncertain procedure, and it is exactly this point which I wish to emphasize, and if possible illustrate to-day, namely, that if we want to do the best for our patient and insure her recovery we must find some method of making the diagnosis, in many cases, even before she suspects anything herself. This is not always in our power, because, unfortunately, the patient does not present herself for examination in time. When this occurs the physician must, of course, be held guiltless; but it is just in such cases that the family physician who has been in attendance upon the patient in her labors, and who has gained her confidence, can institute such procedures as will lead finally, I hope, to a regularly established prophylactic treatment of carcinoma of the genital tract.

For the prophylaxis of the carcinoma the following measures have been suggested by Dr. Kelly. They may be arranged under four headings:

1. Within two or three months after each confinement every woman should submit to a careful examination, and the exact condition of the pelvic outlet and of the cervix should be noted. The examiner should particularly observe whether the cervix is lacerated, infiltrated, or whether the lips are everted, and should get a clear idea of the size and position of the uterus. When laceration or infiltration is found, the condition should be treated either by puncture and depletory packs, or else the lips should be freshened up and the laceration should be united by means of sutures.

2. Every woman with a deeply lacerated and enlarged cervix should be operated upon.

3. Every woman with a family history of cancer who presents a laceration of the cervix, no matter of how slight a grade, should present herself to a competent physician about every six months in order that the cervix may be carefully inspected.

4. Every woman over thirty-three years of age who has borne a child at any time during her life should be advised to submit to an examination, and she should be guided by the physician's statements about the condition of the cervix, as to whether it is advisable for her even in the absence of symptoms to present herself at stated intervals in the future for further examinations.

If these rules were followed, the physician would at least have the opportunity of diagnosing the disease in its incipient stage and while it is still curable.

Now as to the making of this diagnosis certain in the incipient stage, it is very hard in many cases where the growth is confined strictly to the cervix, and the mobility of the uterus is not interfered with, to distinguish this form of malignant disease from a harmless eversion of the lips or ectropion. When we see an elevated area differing a little in color from the sound mucous membrane, and tending to bleed freely upon the slightest touch, we should look upon it with grave suspicion, and if it feels hard and nodular, and upon a second or third examination at short intervals shows a tendency to extend, it should be removed without delay. Yet in our anxiety to guard against all possible danger we should not be too anxious to submit our patient to a serious operation, and, fortunately, we now have within our reach the means of clinching our diagnosis.

The microscopical examination of scrapings from the uterine and cervical canal is by no means so satisfactory as was at first hoped. One might think that this would be an easy way of deciding whether malignant disease existed or not. We now know that it is possible to have

an increase in the number and size of the glands, and even the presence of more than one layer of epithelium without any co-existing malignant disease. And it is only when we have certain proof that the subjacent tissues have been invaded by the epithelial element that we can be sure of our diagnosis.

In the same way, when the suspicious condition is limited to the vaginal portion of the cervix it is of but little value to merely scrape off a portion of the superficial tissue. But we need not confine ourselves to this procedure, for with help of cocaine we are now able without giving the patient any pain worth mentioning to excise a portion of the deep-lying tissues; from this, sections can be made and examined under the microscope, and if any signs of malignancy are seen we can not only advise an operation with a good conscience, but also may confidently hope that we have eradicated the disease.

In order to illustrate my point I will quote one or two cases.

CASE 1.—Mrs. C. G., aged 46, was admitted to Dr. Kelly's ward in the Johns Hopkins Hospital on the 18th of June, 1894, complaining of constant pain in the left ovarian region and of what she termed "a sense of fulness in the womb." The family and personal history was excellent, except that, seventeen and a half years before, she had suffered from some disease which was probably gonorrhœa, since which time she had always felt weak in the left ovarian region. The present sickness dated from about five months ago, when she had some discharge of blood from the vagina, which was continuous but not profuse; the feeling of fulness in the womb began at about the same time. On entrance the patient showed no signs of cachexia. The vaginal examination showed a somewhat relaxed outlet, the cervix rather low; scar tissue was found running from

the posterior lip down upon the posterior vaginal wall. Cervix very irregular, nodular, greatly indurated; the os could not be made out. Uterus enlarged, filled up posterior part of pelvis, and fixed. After examination under anesthesia, a diagnosis of double pyosalpinx with retroflexion of uterus and dense adhesions was made. This was therefore all that could be absolutely made out even at this time, and I must go back to what had been discovered as early as April in this case. On April 20th, 1894, as a preliminary procedure the cervix had been dilated and the uterus curetted. At this time the scrapings were examined, and portions of the tissue of the cervix removed at the same time were also examined microscopically, with the following results: "The specimen contained a moderate number of glands with high cylindrical epithelium; the lamina are empty; in a few places springing from the margin of the glands are large alveoli filled with epithelial cells having large nuclei; these alveoli also occur independently of the glands; in none of them has any degeneration taken place. The stroma is made up of cells having round or oval nuclei, and appears to be of connective tissue origin. Along one margin is seen non-striped muscular tissue." A diagnosis of probable epithelioma of cervix uteri was made. On Juue 24th, 1894, the major operation was performed, and uterus, tubes and ovaries were removed, the diagnosis of endocervical carcinoma being confirmed. In this case, therefore, it was of the utmost importance to the woman that the uterus, as well as the tubes and ovaries, should be removed in time. Even up to the month of June the clinical symptoms were not clear enough to warrant so radical an operation, whereas the indications from the microscopical examination were almost positive.

It must be insisted again, however, that in these cases it is not enough to examine the scrapings. In every

suspicious case a portion of the cervical tissue must be cut out and submitted to microscopical examination. I have in my mind a case of which I have not the exact data, in which the uterine scrapings were examined and a diagnosis of "apparently normal mucosa" was made. A section from a portion of the cervix was cut out and showed signs of carcinoma. The uterus was accordingly removed and the diagnosis was verified, an epithelioma of the cervix being present, whereas the uterine mucosa of the fundus appeared perfectly normal.

DISCUSSION.

DR. HUMISTON:

This very able and comprehensive paper has the right ring to it, and I feel it is of value to every practitioner. Prophylaxis is the course we should take. Where there is an eversion of the lips of the cervix, in a case of laceration, the case should be subjected to repeated examinations. It will be impossible to have women come and submit themselves semi-annually or quarterly for examination. We should repair such cases at once. The operation is not painful, and does not last over ten or fifteen minutes, and can be done under cocaine, without general anesthesia. If you have a doubt as to the character of it, submit a section to microscopical examination. Repair the cervix at any rate. It is not a major operation. The microscopical examination will determine if it is malignant, and then is the time to make a hysterectomy. The mortality of vaginal hysterectomy now is about 2.5 per cent., which is, of course, almost *nil.*

INFLAMMATORY DISEASES OF THE CERVICAL LYMPHATIC GLANDS.

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Owing to the close relations that the cervical lymphatic glands bear to the important and vital structures passing through the neck and those belonging properly to this region, the frequency of their being diseased, and the immediate and remote results of such diseases, this subject becomes one of special interest to the physician and surgeon. Bound together in the neck in a small compass we find posteriorly the vertebral column enclosing the spinal cord, blood-vessels and nerves, air- and food-passages, muscles, glands, cellular tissues and fasciæ. The spinal cord is the only one of these that is well protected, and therefore not liable to be involved with diseased lymphatic glands or complicated in the treatment.

A brief description of the topography of the neck and the anatomical arrangement of the glands is necessary before considering the subject proper. I will not mention the different regions and spaces other than to say that the neck forms two irregular quadrilateral spaces,

one on either side. These spaces are bounded superiorly by the lines of the lower jaw and mastoid processes and the superior occipital lines to the occipital protuberance ; inferiorly by lines extending along the clavicles, the acromion process and to spinous process of the seventh cervical vertebra ; posteriorly from the spinous process of the seventh cervical vertebra to the occipital protuberance ; and anteriorly by the middle line of the neck.

These spaces are divided diagonally by the sternomastoid muscle into the posterior and anterior triangles. Subdivisions of these triangles are further made by anatomists, but aside from the suprahyoid space they are of little practical value to the surgeon. The sternomastoid muscle is the leading guide to many of the important organs.

There is perhaps no other portion of the body where the anatomical arrangement of the organs is more constant in their positions than in the neck, therefore with a thorough knowledge of the landmarks the surgeon can operate on glandular enlargements with comparative safety in so far as danger from anomalies is concerned. This constancy of the structures of the neck is due largely to the arrangement of the fasciæ. The superficial fascia is continuous with that of the head and trunk, and includes the platysma myoid muscles and the external jugular veins, and is very loose. The deep fascia divides, fixes and binds together the various tissues and organs, and has strong attachments to the transverse processes of the cervical vertebræ.

There are some points of great value in connection with the arrangement of the superficial and deep fasciæ in making a diagnosis of tumors in the neck and also in arriving at a prognosis. Glands that are loose and movable are usually confined to the external fascia, when in the deeper fascia they become fixed. Again, owing to the arrangement of the different sheaths and

layers, tumors have a tendency to grow downward. This is especially true of fluid tumors. These observations are not confined to the lymphatic tumors alone. This tendency should always be borne in mind by the surgeon in making a diagnosis of obscure swellings in the neck.

As our subject is confined to the lymphatic glands, a consideration of the anatomy of the neck will not be further necessary, except to give a brief description of these glands. The lymphatics of the neck in their distribution do not vary from the general arrangement in other portions of the body in that there are two sets, superficial and deep. In number they exceed that of any other portion of the body, and the deep-set are of larger size. The superficial set are found along the external jugular veins, between the platysma and the deep fascia. They are most numerous at the base of the posterior triangle. A few small glands are found on the front and sides of the larynx and beneath the mastoid processes. The deep-set form an uninterrupted chain along the internal jugular veins and carotid arteries. There can be no correct estimate placed upon the number of glands in the different groups of the neck.

With these imperfect outlines of the topography of the neck, I will now proceed to a consideration of the inflammatory diseases of these glands. The inflammatory diseases in their general features are so well understood that I will not devote much space to a description. Since the management of the different forms is in many instances so radically different, we are compelled, however, to give a classification and a short clinical history of each.

The most practical grand divisions are simple and specific. The simple variety is met with in children perhaps oftener than almost any other disease. In severity, simple adenitis exists, from the evanescent swelling of the glands that passes off in a few days, to that of suppura-

tion or chronic enlargement, that continues for weeks and causes the patient much trouble, and is liable to become specific from secondary infection. The clinical features are so common that it is useless to take your time with an extended description. The etiological factors are numerous; inflammatory processes about the mouth, face, head and ears, such as ulceration of a tooth, stomatitis, tonsillitis, or any of the diseases of the mucous membranes, eczema of the face or scalp, dermatitis, otitis media, pediculosis capitis, and other diseases too numerous to mention, are frequent causes. The eruption of the teeth, exposure to cold, and sprains, are all common causes in producing swelling of the cervical glands. The pathological changes that take place are first found in the cortex of the gland. It becomes more vascular, soft, and swollen; the reticulum loses its distinctiveness; the lymph passages become packed with lymph. The capillaries become enlarged, and the gland becomes a deep purple in color. The termination may be by resolution, chronic enlargement or suppuration. Owing to the inherent power of the glands to throw off foreign bodies and to resist the attacks of invading microbes, a large proportion of them undergo resolution and disappear. When the inflammation becomes chronic, there is a failure to absorb the exudates and they become organized. This thickens the capsule, and it becomes hard and adherent to the surrounding tissues. In some cases the lymphatic vessels are compressed, and there follows dilatation of them and œdema of the parts. If the termination is by suppuration, the gland itself or tissues surrounding it will be the seat of necrosis. If the latter, the gland is often found partially intact in the abscess.

There is always danger of simple adenitis becoming tubercular. A healthy gland has a resisting power to the growth of tubercular bacilli, but when diseased it very readily becomes a nidus for their cultivation. I do

not believe the profession is fully alive to the danger of this source of tubercular infection. Enlarged glands are so frequent and terminate favorably in so many cases that the physician becomes indifferent to the gravity of them.

Under the specific inflammatory enlargement we have tubercular, syphilitic and glandular, and a few others not necessary to mention. It is now a well-established fact that the lymphatic glands all over the body are frequently affected by tuberculosis. The cervical glands are especially prone to be affected, probably owing to the numerous sources of infection about the mouth, face, and head. It is claimed that 95 per cent. of all the cases of tubercular adenitis occur in the cervical lymphatic glands.

The source of infection is much the same as in the simple variety. There is some abrasion or disintegration of the skin or mucous membrane, through which the bacilli gain entrance to the lymphatic vessels and are carried to the gland. The bacillus tuberculosis is non-motile, so this is the only explanation we can give of its entrance and progress. Another clinical fact goes to prove this, in that when a gland becomes infected belonging to the superficial set, others in the same chain become affected. It is so with the deep-set. This is most conclusive evidence that the bacilli are carried by the lymph current. In the active stage of the inflammatory process the lymph vessels are sometimes occluded, and thus prevent the extension of tubercular infection for the time being. There are some exceptions to this rule of invasion in the direction of the lymph current. These exceptions may be accounted for by the wandering leucocytes to which the bacilli may become attached. We may note another clinical feature that bears upon the above theory, that as long as the bacilli are confined to the lymphatic glands there is no danger of general in-

fection, but when they pass these filters, and the germ gets into the general circulation, there follows general tuberculosis — generally pulmonary.

For an extended description of the pathological anatomy, I will refer the reader to works on that subject. Suffice it to say that cell necrosis is followed by caseation, and the bacilli within these nodules die or become inert, and frequently remain for months or years without any signs of activity. During this time the gland is not tender and remains quiescent, and gives the patient no particular trouble. The cheesy material may dry and become enclosed in the capsule or connective tissue, and result in calcification, or it may undergo liquefaction.

Secondary infection may take place from pus microbes, when an acute inflammatory process will set up, involving the surrounding tissues, followed by suppuration. When a group of glands are diseased, the first infected may have undergone the degenerative process above mentioned, while the last ones are simply pinkish and only show the primary stage of the disease.

I recently removed eighteen axillary glands from a patient, where they ranged in size from a walnut to that of a small almond. They were knotted together by connective tissue, and the larger ones had undergone the cheesy degeneration. Liquefaction had not taken place in any of them. Several of them had a few foci of necrotic degeneration, and the smaller ones did not present any changes further than the hyperemic enlargement.

It occurs to me that a differential diagnosis among the several forms of cervical adenitis is of great importance, and inasmuch as this paper will be of greater length than intended, I will omit the symptomatology, and consider a few important clinical features in pointing out the diagnostic points of each kind. In simple adenitis there is difficulty oftentimes to differentiate

from the tubercular. In recent enlargements there is no positive diagnosis outside of a microscopical examination. One method, advocated by Dr. Beck, of New York, if reliable, may be of practical value, because it can be used by the general practitioner; that is, to inject the suspected part with a saturated solution of iodoform in ether every three days. If there has been a cheesy degeneration going on, the gland will grow less in size. I have not had sufficient clinical experience to declare for or against this procedure. If the enlargement is chronic, and involves more than one gland, the chances are largely in favor of tuberculosis. The age of the patient has some bearing. Simple adenitis is very common in children and not so frequent in adults. On the other hand tubercular adenitis is very common between the ages of fifteen and thirty-five.

Another clinical observation that I think has been overlooked by the profession is that adenitis occurring in a person in close relation to a tubercular patient should be watched with great care. I have at present several children under my observation who have enlarged lymphatic glands, and are surrounded by persons with pulmonary tuberculosis, or have had near relatives die from this disease recently.

Simple adenitis is due to noxæ that affect the lymph circulation and find a lodgment in the glands. Several glands may be enlarged, but resolution takes place in a short time.

Suppurative adenitis is an acute inflammatory process that terminates in a few days in pus.

Adenitis developing from a sore about the lips that has the characteristics of a venereal sore can be easily differentiated from the simple or tubercular varieties.

In tertiary syphilis the whole glandular system, especially the superficial set, is affected. The affected glands are painless, indurated and loose in the tissues.

Carcinoma never occurs as a primary affection of the lymphatic glands. When enlargement of glands occurs close to a suspicious tumor there is not much doubt as to its character. Lymphoma always affects but one, and the cause is benign.

Lymphosarcoma gives rise to regional and general infections. In this respect it is like tubercular adenitis, but it is not inflammatory, and therefore does not produce degeneration of the tissues.

A prognosis of inflammation of the cervical glands depends largely upon the variety and the management. If left to themselves or treated in an improper manner they become a frequent source of death. Simple adenitis *per se* is not dangerous, but when we consider the danger of secondary infection from tuberculosis it becomes a grave disease. Local tuberculosis is a constant menace to the life of the patient, and therefore the gravity of tubercular adenitis, in *the cervical glands especially*, should be recognized. General infection may not occur, but the disease remains there with the wand of death ready to beckon its victim.

The treatment of cervical adenitis after a careful diagnosis has been made is important. In the simple variety much can be done to avoid suppuration and secondary infection. One of the cardinal principles in treating adenitis, of whatever kind, is to remove the cause or source of the trouble. When called to a patient with enlarged cervical glands, it is the imperative duty on the part of the physician to carefully examine the mouth, throat, nose, ears and scalp to find the cause of the trouble, and if found, it should be removed. Rest and the application of cold to the swollen glands is about the only treatment necessary following the removal of the cause. I wish here to protest against the almost universal custom of applying local irritants over swollen glands, such as tincture of iodine,

coal-oil, etc., etc. I also protest against the indiscriminate use of fomentations. The ancient theory that iodine applied externally causes absorption of exudates or will reduce enlarged glands, seems to be prevalent among physicians of the present day. The external use of tincture of iodine is unsightly, painful, and may be injurious. Local irritants stimulate the pericellular tissues to a vascular hyperemia, and thus may convert a quiescent enlarged gland into an acute inflammatory action and possible suppuration. Another source of danger may arise from the abrasion of the skin, so that microbes may find their way into the lymph currents and diseased gland. These strictures on the use of irritants apply both to the simple and specific varieties.

When suppuration has taken place, fomentations may take the place of the cold applications. As soon as fluctuation can be detected, a free incision should be made into the pus-cavity. The patient should be anesthetized, and then the abscess can be opened carefully, and thoroughly cleaned out. By "cleaning out" I mean curetting and washing with an antiseptic solution, and then packing with iodoform gauze. If this plan can be followed, there will be a speedy recovery, with the least possible drain upon the system and resulting scar. Constitutional treatment is necessary to support the system. I depend upon the lime salts, arsenic and iron. If the suppuration is found to be in the periglandular tissues, and the gland not fully broken down, which is often the case, it should be removed and the cavity treated in the above manner.

The treatment of the tubercular variety is one of the most interesting and important subjects pertaining to the management of the lymphatic glands. The treatment very naturally resolves itself into two forms: constitutional, and local or surgical. Under the constitutional treatment there lurks much danger to the patient.

The old idea of the effect of the "alterative treatment" in scrofula is still abroad in the profession. No one knows what it means, but through ignorance of the action of drugs and the pathology of tubercular adenitis the physician goes on prescribing nauseating medicines, hoping thereby to cure these local swellings; but his patient goes on toward the grave, or a return to health after months and years of running sores and certain resulting hideous scars. The true purpose of constitutional treatment is, or should be, to build up the system. This can best be accomplished with cod-liver oil (pure—emulsions should be discarded), arsenic, iron, nutritious diet, and proper hygienic surroundings. The curative treatment is surgical, and should be resorted to at the earliest possible time. On general principles there are no good reasons for delay. Early extirpation of tubercular glands affords as great immunity from subsequent infection as it does in carcinoma. In the face of modern statistics no one would advise delay in removing a malignant tumor before the surrounding tissues and glands become infected. So it is with tubercular lymphatic glands; if left alone, additional glands become infected; there is constant danger of general infection, and there will be more or less pericellulitis, thus complicating operative interference, and other complications will arise that will make what primarily would have been a simple surgical operation, one of the most formidable known to surgery, thus jeopardizing the life of the patient.

The surgeon must be thoroughly familiar with the topographical arrangement of tissues and organs of the neck before he ventures to operate, and he must be prepared to meet emergencies of the gravest character. Exercising all the skill and care possible, he will meet with difficulties that will require mature judgment to overcome. I have found it necessary to ligate the jugu-

lar vein in two cases, and the external carotid artery in one. These cases presented no unusual features, except that the enlarged glands were closely adherent to the vessels by adhesions caused from pericellulitis, and could not be diagnosed before the incision was made. In the posterior triangle of the neck, if a tumor is large and with a tendency to grow downward, there is considerable danger from direct infection through the apex of the lung. In one case, operated about three years ago, the gland had become quite large, and pressed upon the lung in such a way as to produce a severe cough. The tumor was found to be attached to the pleura and subclavian artery and the several cords of the brachial plexus. A subsidence of the cough followed the removal of the tumor, and what seemed to be an incipient tuberculosis was fully arrested, and the patient now enjoys perfect health.

There are some important points in the technique of these operations that should be closely observed:

1. The incision through the integument should be large enough to expose the glands to be removed. By adhering to this rule many of the accidents referred to will be obviated.

2. Never use a cutting instrument if it is possible to avoid it. One of the best instruments for the purpose is the plain curved scissors; the concavity fits nicely over the surface of the tumor and reduces the danger of injury to either the cyst or blood-vessels to a minimum. The finger is also an efficient and intelligent dissector, to be used in preference to any other instrument, if space will admit of it.

3. If suppuration has taken place, the sac should be thoroughly curetted, removing, if possible, all the diseased tissues, and the exposed surfaces wiped out with pure carbolic acid and then packed with iodoform gauze. There should be no effort to close the incision by sutures,

except at the angles. Tubercular bacilli do not flourish in a dry place, therefore the wound should be kept as free from secretions as possible. The dressings should be changed every second or third day.

4. If suppuration has not taken place, and the glands can be removed without bursting the sac, the incision can be closed up without drainage.

5. It is highly necessary to remove all the glands that can be found in the region infected. The operator will often be surprised at the number affected when he comes to make an examination directly through the wound. One small gland left, if infected, will defeat the result of the operation.

CONCLUSIONS.

1. Inflammatory diseases of the cervical lymphatic glands are frequent, and a common source of grave complications.

2. Simple adenitis should receive careful and prompt attention from the physician.

3. Constitutional treatment has no direct influence on these enlarged glands.

4. Irritating local applications are unsightly, painful, and a frequent source of secondary infection from pathogenic microbes.

5. The tubercular form frequently leads to general tuberculosis, death, or chronic suppurating sinuses that continue for years and eventually leave disfiguring scars.

6. That the early removal of chronic enlarged glands or tubercular glands is followed by a greater immunity from a return than the early removal of a carcinoma.

7. The operation should be thorough, removing all the glands in the plexus that can be found.

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THE TREATMENT OF PNEUMONIA.

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The introduction of this subject at a time when your deliberations are necessarily taken up with important matters requires no apology. The paper deals only with lobar pneumonia: that variety of pulmonary inflammation, which, running a rapid course, was already ranged with acute infectious processes, even before any accurate study of its bacteriological relations had been made. Is there a routine treatment for pneumonia?

No physician of large experience has escaped the conviction that pneumonia, while essentially productive of the same anatomical change in many cases, presents, at times, most important clinical variations. There are certain periods when the course of the disease is characterized by great prostration, by tendency to the appearance of nervous symptoms at an early period, and by very high percentage of mortality; other periods, when the cases pursue a course in every way justifying the designation of frank pneumonia. These differences are not, as might be argued, dependent upon individual peculiarities, such as the recognized vulnerability from previous interference, old age, or the convalescence from exhausting disease. Taking the history of the disease in any large city or locality where vital statistics are properly kept, it will be found that the percentage of mortality amongst the young, vigorous, previously healthy subjects, is subject to very wide fluctuations; and that the

greatest mortality will be found with the prevalence of what might almost be termed epidemic pneumonia, a form that has been described by Leichtenstern as adynamic pneumonia.

With these well-marked clinical differences, the inference might very promptly be drawn that no one line of treatment would be found invariably useful, but this inference I believe to be incorrect; for, while certain details of the management may, perhaps, be advantageously modified from time to time, the general indications for treatment will always remain the same.

What is it that renders the patient's condition serious in pneumonia? Is it carbonic acid poisoning, from suppression of the function of the affected lobe? That some such condition existed had long been believed; and it was doubtless with a view to compensate for the defective supply of oxygen consequent upon a reduction of the area for absorption, that the inhalation of oxygen gas was recommended. This measure has, however, not become popular; and, though it may be deserving of some consideration, past experience has not confirmed the fond hopes of those who brought it prominently before the profession. In the more serious cases, the results after oxygen inhalation have not shown such decided improvement over former statistics as to establish any valid claim. Requiring, as it does, considerable apparatus and care for proper application, it will necessarily happen that outward circumstances shall preclude its employment, even when the physician and patient might sanction its use. My own limited experience of three cases has not impressed me with any advantages peculiar to the oxygen inhalation.

Yet it is not surprising that disappointment should follow the use of a plan, founded, as I believe, upon a radical misconception of the indications for treatment. Is the danger to the patient really one of impaired oxida-

tion and imperfect elimination of carbonic acid gas? The consolidation of the affected lobe does lessen the osmosis of gases to and from the pulmonary circulation, so far as that lobe is concerned; but with the congestion of the remaining portions, with increased frequency of breathing, there is an increased elimination of carbonic acid gas, absolutely, over the normal excretion.

Moreover, do we not see cases of pleurisy, with exudation so extensive as to completely suppress the function of the lung upon one side, without dyspnœa, lividity or other evidence of carbonic acid poisoning? There has never been an earnest suggestion of a therapeutic indication for oxygen inhalation in such cases, though the actual amount of breathing surface in these is certainly very much less than in cases of acute pneumonia.

The strongest argument, however, against the view which would attach undue importance to the actual anatomical changes in the structure of the lung during the attack, is furnished by the study of the pneumonia cases themselves. At the time of the crisis, with the sudden defervescence, the frequency of the pulse and respiration undergoes a marked decline, bringing the figures for these functions closer to the normal, yet the affected lobe is still consolidated; there is nothing to be learned by auscultation and percussion showing that air enters more freely than before. The whole clinical picture is however changed, vastly changed for the better.

It will not be denied that cases occur in which the rapid involvement of an entire lung, or the simultaneous affection of several lobes on both sides of the chest, does embarrass the circulation of blood through the lungs, while materially interfering with aëration; but it is not in such cases only that we see bad results, or that the course of the disease is quickly fatal. Take for example the following history of a patient admitted to my service in the Cincinnati Hospital:

A laborer, aged 46, of American parentage, a man of fine physique, was received at the hospital one afternoon, with the history of having been drinking steadily for several months. He was very nervous, the muscular tremor was well marked, complained of feeling badly, and seeing double. Pulse 120, full and bounding; temperature 98.6°. He was ordered bromide and bitter tonics. At 6 P. M. the temperature rose suddenly to 103.4°, the respirations increased from 20 to 42 per minute; at midnight the pulse was 138, the respirations 54, the temperature 103°; at 4 A. M. the pulse was 180, the respirations 60, the temperature 105.4°; at 4.45 A. M. he died. The left lower lobe was found almost completely consolidated.

There was no dyspnœa on admission, no history of cough, of chill, of thoracic pain, no expectoration, no fever; yet the fatal termination came after what seemed to be less than twelve hours of illness. Surely there was no question here of carbonic acid poisoning.

Many cases of pneumonia die from complicating meningitis and pericarditis. Opportunities for post-mortem examination are not commonly found outside of hospital life; and it has been very instructive to me to note how frequently an accompanying pericarditis is found at the autopsy, when a most careful search, directed especially to an early recognition of such a complication, has failed to disclose any abnormal sounds about the heart, unquestionably because of the creamy, purulent character of the exudation. It is particularly in the form of pneumonia accompanying an epidemic of influenza, that meningeal inflammation develops and often leads to death.

But outside of all cases falling into these categories, there remains a large number of cases to be accounted for, cases occurring under most favorable circumstances, in what might be termed selected individuals, where the

end comes unexpectedly, almost at the moment when a favorable turn could be reasonably expected. Why? It is because, not the lung, but the heart is at fault. Increasing experience has more than vindicated the correctness of the statement made by Jürgensen in 1871—that "cases of pneumonia terminate fatally from insufficiency of the heart."*

Essentially an infectious process, the development of the disease is associated with the formation of principles toxic in character, depressors of the circulation. Should the heart be already weakened by age, intemperance or degenerative changes, so much the worse for the patient; but the high temperature of the pneumonia itself, the chemical changes incidental to the disease — as shown by the absence of chlorides in the urine — these, too, may in a short space of time so weaken the tone or integrity of the cardiac muscular fibre, that slight exertion proves fatal. Few acute processes are attended by a higher range of temperature than is pneumonia. The disease is fortunately of short duration; the danger from hyperpyrexia is consequently lessened, but by no means overcome.

We are not strangers to the statement, often encountered, that an attack of pneumonia may be aborted. It is an old doctrine, and under its influence bleeding and counter-irritation became the most prominent factors of the treatment in the early stage. We now know that bleeding is actually an injury to the patient. It does carry off a certain proportion of toxic principles from the blood, and, by diluting those that remain, may assist in turning the scale in favor of the patient. The lowering of arterial tension, consequent upon the rapid loss of blood, certainly assists in preventing undue congestion of the affected lung, as of the surrounding healthy parts. But the withdrawal of blood carries off

*Volkmann's Sammlung.

many valuable ingredients, as well as some that are harmful. The impoverished circulation can not easily repair the damage to degenerated heart and muscle fibre; the injuries of venesection far outweigh any possible benefit to the patient.

Diminution of arterial tension can be easily accomplished by other means that do not entail actual loss of blood. Of medicines, aconite and veratrum viride head the list, the former being preferred for children, the latter for adults. The classic phrase of "bleeding a man into his own vessels" has its application here. The slowing of the heart's beat, the dilatation of the peripheral arteries, acting in concert, tend to retain a certain surplus of blood in the peripheral circulation, thus reducing the total volume that must be carried through the pulmonary circuit. The heart and lungs are not so severely taxed, and the patient's general condition fully expresses the relief obtained.

But do we ever abort pneumonia? I should be slow to believe it. It is not unusual during the prevalence of the disease to find cases, apparently most threatening in character, in which the symptoms entirely abate after thirty-six or forty-eight hours, without recourse to those medicines which have a so-called specific effect. The aborted cases probably belong to this category, and would have followed a course equally benign without much medication. The following is a case in point:

J. W., aged 73, colored, roustabout, of good physique, admitted to colored medical ward February 21st. Had pneumonia 45 years ago, typhoid 35 years ago, malarial fever, variola, 15 years ago; has been drinking pretty heavily; denies syphilis; complains of cough and pain in the side upon coughing, moaning or deep breathing. Temperature 4 P. M. 104.6°. Physical examination shows pneumonia of left lower lobe. Urine, specific gravity 1008, contains albumen. At 3 A. M. temperature 102.4°;

at 6 A. M., 101.6°; at 9 A. M., 97°. There was a slight secondary rise on the fourth day to 100°, otherwise convalescence was uneventful.

Here was a case with every indication pointing almost of necessity to a fatal issue. The age of the patient, the coexistence of albuminuria, the low specific gravity of the urine, the high temperature, and the history of excessive drinking, were certainly unfavorable features. Had there been any effort made to abort the attack, after the method of treatment sometimes in vogue, the prompt decline to the normal temperature would most certainly have been construed as a remarkable instance of such therapeutic action. The treatment consisted mainly in stimulating the heart, and the sudden and unexpected turn for the better could not in any way be referred to this. The case was so striking that it seemed proper to cite it as an instance of the fallacy of concluding that pneumonia is aborted because it follows an unusually rapid course.

The danger that most steadily menaces the patient is from inadequacy of the cardiac contraction. Many infectious diseases are accompanied by longer periods and more extreme limits of high temperature without, apparently, producing anything like the same amount of cardiac depression. For this reason it is fair to conclude that it is not so much the degeneration of muscular fibre from high temperature, as described by Zenker, nor the exhaustion incident to wasting disease — seeing that this is essentially a very short morbid process — as it is the toxic effect upon the heart of principles introduced into the circulation as a cause, or as a result, of the disease. The severity of the initial chill indicates the violent reaction against a toxic principle of great power.

This danger is not confined to any particular period of the disease, though it is rarely to be dreaded after the crisis has been established. The cardiac failure may

develop very suddenly. It is not uncommon in reviewing the records of hospital cases, to find the history close with this note: "Patient died suddenly." This precipitate failure recalls, in some salient features, a very common mechanism of death in diphtheria; save that, in the latter affection, there is usually a marked interval between the subsidence of the local symptoms and the occurrence of the graver accident that is so frequently fatal.

A man, aged 69, a peddler by occupation, who had suffered from winter cough for several years, was received in the hospital for an injury to his back; but, owing to the cough and high temperature, was at once transferred to the medical service. The physical signs were those of apex pneumonia of the left side. For nearly two weeks the patient made satisfactory progress. On the fifth of March the pulse was 80, the respiration 30, the temperature 100°. On the sixth he complained of slight headache and dizziness; on the eighth, while not observed, he got out of bed, intending to reach the closet; his neighbor noticed a sudden cyanosis, the patient fell, and could not be revived, though hypodermics of ether and other stimulants were immediately given.

The frequency with which the heart plays the leading *rôle* in the production of dangerous symptoms has long since led to the employment of cardiac tonics, notably to the use of digitalis. This remedy was again most favorably brought to the attention of the profession by Petresco, of Bucharest, who, at the Berlin Congress, reported upwards of 800 cases of pneumonia treated with heroic doses of digitalis (60 to 120 grains daily), showing, for the series, a mortality of less than three per cent. The remedy has also received warm indorsement from Huchard, Ferrara, and many others; and the general idea seems to be that it should be employed early and in tolerably large doses, the tonic effect upon the heart be-

ing more readily secured by a few large than by repeated small doses. The particular form of administration may be left to the option of the physician. I have used with great satisfaction hypodermic injections of digitaline (Duquesnel's), preferring this to other methods because it is always under control, induces no vomiting, can be given with the patient conscious or unconscious, and mainly because, in the French digitaline, we possess an agent of constant chemical composition, so that the dosage can be fully relied upon. One two-hundredth grain of digitaline is given with one one-hundredth grain of strychnia every two or three hours.

Digitaline has slight disadvantages, in that the injection is always somewhat painful, and in some cases produces minute abscesses in the cellular tissue. This is, however, so rare that it may be merely accidental. Besides, it has actually been recommended by Lépine, Dieulafoy, Rendu and others to establish the so-called fixation abscesses in the cellular tissue, as a sort of counter-irritant, or as a sort of secondary infection center, the principles absorbed from which would neutralize the toxins of pneumonia.

With their medicine, all my pneumonia patients receive alcohol in very liberal doses. The tolerance for alcohol in this disease might not inaptly be compared to the tolerance for opium in peritonitis. I have known a child of four years take a pint of champagne every twelve hours for several days, never manifesting any sign of intoxication. Adults have frequently taken a quart of whisky every twenty-four hours, remaining perfectly sober. Whatever view we may be inclined to take of its physiological action, the weight of evidence is entirely in favor of its employment. Alcohol may reduce heat, as Binz says, by acting on protoplasm so as to prevent tissue changes; it may act as an excitant of nerve force, or as a general and diffusible tonic, but it has certainly

proved its right to a permanent place in the therapeutics of pneumonia. Ferrara, who says that "the care of the heart constitutes the cardinal point in the treatment of pneumonia," prescribes pure alcohol, diluted with water and syrup; other vinous and spirituous liquors may be substituted, according to the taste of the patient.

A third important feature in the management of such cases is the maintenance of the functions of the skin. The kidneys are certainly impaired in their activity; the skin is nature's vicarious eliminant. In a number of cases lately under my care, the plan has been followed of giving the patients, every two or three hours, a plunge bath at a temperature of 95°, the stay in the bath being limited to ten minutes. The face was repeatedly sponged with cold water during the bath, and a tablespoonful of whisky always was given just before.

The congestion of the surface, the stimulus to respiration by contact of water and the perspiration following the bath, all combined to make the patient much more comfortable; and there was frequently a demand for the bath long before the proper time. The capillary dilatation in the entire skin could not but act favorably in relieving the pulmonary circuit of some congestion, while it is possible that increased elimination of toxic principles was also accomplished in this way.

I exhibit the temperature charts, showing the frequency of bathing in two cases; one of a colored woman twenty-eight years of age, the other of a colored girl of nine, in both of whom consolidation rapidly extended from the lobe first affected until only one lobe upon one side remained free. In the case of the younger patient, the respirations reached 104 per minute, and were long above 90; in the other, the respirations were about 70 throughout, even after the crisis. This patient re-

ceived 125 baths, all told. Recovery of these cases, in appearance so desperate, was highly gratifying; and farther experience with the method has strengthened the belief that maintenance of the activity of the skin should go hand in hand with other features of the treatment. The bath may not always be possible, owing to the want of skilled assistance. An expedient employed by my friend, Dr. Brady, of Greenup, Ky., can, however, always be brought into service for the same purpose. A stream of hot air is conducted under the bedclothing, producing a miniature Turkish bath, and practically yielding equally good results.

Too much emphasis can not be laid upon the necessity for an abundant supply of fresh air, and not too many individuals to consume it. The sick-room must be constantly ventilated, winter and summer, and the presence of attendants should be reduced to the least possible number.

I have not referred to the new method of serum therapy, advocated by Hughes, Carter, and Audéoud. The inoculation of a suffering patient with blood or serum from a convalescent pneumonia patient, may be productive of some benefit; but, with the lurking taint of syphilitic infection, from which no one is ever safe, it is hardly desirable to expose the patient to this serious risk. The use of expectorants, stimulating or nauseating, is rarely necessary. Local applications to the chest, cold or hot, have proved of some value as palliatives, for the momentary relief of pain, for which morphia may also be employed. But it is the heart which should give us the most concern; and our treatment should be governed by the old maxim, that in pneumonia no therapeutics should be inaugurated without the pulse as guide.

DISCUSSION.

DR. TUCKERMAN:

It would seem, in harmonizing this apparently conflicting testimony, it were best to come down to the basis of these diseases. Pneumonia is, I believe, now considered to be due to a micrococcus, whose action upon the blood is to produce an eliminable toxin and a permanent antitoxin. Now, there is one common feature in the successful treatments of pneumonia. The drugs and measures clinically found to be of use, digitalis, strychnia, the cold baths, etc., promote the elimination of the toxin until the point of saturation in the antitoxin is reached, when the micrococcus dies and convalescence begins. Now, which one of these eliminants a man will use is a matter of personal choice. Individually I prefer strychnia and iodide of potash.

CANCER OF THE BREAST: REMARKS ON PATHOLOGY AND TREATMENT.

J. C. Oliver, M. D., Cincinnati.

The general subject of carcinoma is entirely too large a one for me to attempt to cover in an article such as this. I believe I am correct in saying that our knowledge of this affection is more chaotic than of any other medical subject of equal importance. Because of this fact, it is perfectly permissible for each physician to hold and advocate doctrines which are at variance with those expressed by the various authors.

Supposed causes of this affection are many, but the etiology is involved in such profound doubt that a consideration of them would be a fruitless task. Heredity, grief, trauma, bacteria, protozoa and other supposed causes have not received cordial recognition, and cannot, in the present state of our knowledge, be regarded as potential factors in the etiology of the affection. Since the etiology is so obscure, I have deemed it best to confine my remarks to some deductions drawn from clinical and pathological experience.

Cellular elements and a stroma or fibrous network constitute the histological elements of cancer. The blood and lymphatic system, while necessary, do not form an integral part of the growth. The cellular elements vary in size, number and arrangement. No particular cell is characteristic of cancer. The cancer cell is a myth and has been relegated to oblivion. The stroma is a very unstable quantity, in some cases being small in amount,

in others constituting the bulk of the tumor. It seems to me that the relative proportion of cells and stroma is a practical point of much importance to us, both clinically and pathologically, for from this variation we are enabled to formulate the following propositions :

1. The malignancy of a new growth is in inverse ratio to the amount of stroma present.

2. The malignancy of a new growth is in direct ratio to the amount of its cellular elements.

From these two facts, and they are facts, it seems to me that some deductions of an intensely practical nature can be drawn. Preponderance of cells means malignancy well marked; excess of stroma means malignancy reduced.

Modern thought seems to have accepted the primarily local origin of malignant growths, hence we need spend no time in discussing their local or general origin.

At this point I desire to depart from the generally accepted belief and say that I shall attempt to prove from clinical and pathological data that the only essential feature of a malignant growth is the cell elements; malignant growths are essentially cellular structures. This view receives confirmation from facts which have been noted by various observers. After removal of a breast, clumps or nests of cells have been found beyond the apparent confines of the tumor ; no stroma or network is present, yet we know from sad experience that these cells have the power to produce a typical malignant tumor. Under such circumstances we must certainly confess that the quintessence of the disease existed in these cells, and in fact, so far as our observations can go, the cells were all that was *essential* to produce the tumor.

Because of facts similar to the above, and because of the greater malignancy of those tumors which are rich in cellular elements, it seems a perfectly justifiable conclu-

sion to regard the stroma as of secondary importance and of secondary formation; it cannot, therefore, be regarded as an essential part of the growth. The stroma is probably produced by a condensation of the tissues, made necessary by the great increase of cellular elements in the part. The definition of carcinoma, as ordinarily given, is therefore incorrect, in that it describes the fibrous network as part and parcel of the cancer.

From the above condensed statement of facts we may go farther and claim that the fibrous tissue is conservative, being an attempt on the part of nature to limit and circumscribe the growth; it serves as a barrier against further infection. The fact that the more fibrous tissue there is in carcinoma the less malignant it is, the fact that fibroid phthisis is the least malignant form of that disease, and the fact that in the few cases in which spontaneous cure of carcinoma has been observed (Billroth) it has been brought about by an over-production of fibrous tissue, leads me to regard the stroma as our ally and not as our enemy.

Warren, in his "Surgical Pathology and Therapeutics," says: "These cells grow into the surrounding connective tissue, which is thereby stimulated to increased development." This expresses about the same idea I have tried to elucidate above.

It will be observed from what has been said that this function of fibrous tissue is a general and not a specific function applicable alone to the subject of carcinoma. The conservative nature of this element is just as plainly indicated in tuberculosis, syphilis and other pathological conditions which are essentially cellular in their nature.

From these facts, if they be facts, and I am much impressed with their truth, we can, I think, draw some highly important deductions as to treatment. In the first place they show us that the knife should only be

used in those cases which permit of an incision sufficiently extensive to remove all vestige of the disease; for, should we fail to accomplish this, we simple break down nature's barriers and invite a recurrence of the disease, which will be more virulent. As a matter of fact, this is just what does occur, for you may find in any text-book upon surgery the statement that recurrences after removal are prone to be more malignant, more rapid in their growth, more cellular in nature and more rapidly fatal than was the original growth. The history of operation for removal of cancer of the breast presents an increasing tendency to go further and further around the malignant growths. A few years ago, excision of the carcinomatous mass from the breast was considered to be all that was necessary in this class of cases. We next find it recommended that in all cases of malignant tumor in this locality, the entire breast be removed. The next step was that in all cases it was necessary to clean out the contents of the axilla, even though no evidence of disease in that locality was obtainable by the sense of touch. In the November number of *Annals of Surgery*, Dr. Halstead, of Johns Hopkins Hospital, recommends the removal of the breast, the infraclavicular and axillary contents and the pectoralis major muscles in all cases where there is a malignant tumor in any part of the breast. He recommends that these structures shall all be removed in one piece, and gives as the reason therefor that it is not advisable to cut through cancerous tissue, lest your wound become infected from the material left. Dr. Willy Meyer, in the *Medical Record* of November 17, 1894, goes one step further and recommends that in all cases the pectoralis minor muscle be taken out, in addition to the structures recommended above by Dr. Halstead.

This simple enumeration of the changes in technique of the operation shows conclusively that the statistics up to the publication of Halstead's paper have not been satisfactory, and that the apparent hope must come from wider incisions and the removal of greater quantities of tissue in malignant tumors which are far advanced and in which there is great involvement of tissue.

It seems to me that in view of the facts adduced above, the late operation hastens the death of the patient by increasing the malignancy of the disease. In view of the terrible disease from which these patients suffer, this may be a humane act, but it is in direct conflict with the ordinary tenets of our profession. The ordinary reasons given in text-books for operation in this class of cases, are, that the patient's life is prolonged, and that she is relieved of suffering and also of the mental torture of having to carry around with her a foul, malodorous ulcer. Perhaps these reasons are valid, and perhaps they are not all of them strictly true. I doubt very much whether the life of a patient is ever prolonged by the operation in these advanced cases of carcinoma. It is a question to my mind as to whether the greater malignancy of a recurrence does not materially shorten the life of the individual. This, of course, is a point very difficult to determine. I have operated in a considerable number of such cases within a comparatively short time, and with one exception all of such cases have died within fourteen months after the operation. The one exceptional case was a woman in which the anterior and lateral thoracic walls were infiltrated with a large number of small nodules about the size of buckshot. Although this woman is still living, there have been four local recurrences since the operation, which was made in March, 1894, and at the present time she has a fifth recurrence in the supraclavicular

region. Since my personal experience has been so unsatisfactory in this class of cases, I hesitate about advising operation in cases so far advanced.

In conclusion, I desire to call attention to the clinical fact which has apparently escaped observation, and that is, the possible utility of the fibrous constituents of the malignant growth. If the previous statements about the nature of this tissue are correct, it seems to me that some highly interesting and important deductions can be drawn. My idea of this therapeutic application would be about as follows: You will all call to mind at once that tissue of this sort possesses the property of contracting (and the retraction of the nipple in scirrhus is a well-known illustration), and that this contraction causes ischæmia; ischæmia means altered or diminished nutrition of the parts; were this carried far enough, degeneration and innocuousness would be the result. The conclusion, therefore, to this study is that the hope for cure of these malignant growths may be looked for in the fibrous tissue. Were we able to produce this fibrous tissue or to cause an overgrowth of it, we certainly could logically expect the destruction of the malignant growths.

We find in pathological anatomy elsewhere, an example which will about meet my ideas on this subject. As is well known, in cirrhosis of the liver we have the production of new connective tissue between and around the lobules of the liver. The subsequent contraction of this newly formed connective tissue results in altered nutrition and destruction of function of the cellular elements. Now, if this process were applied to pathological formations such as carcinoma, we have practically the same conditions to deal with. We have epithelial masses more or less completely surrounded by a fibrous network, and were it possible to produce an irritation sufficient to cause an increased growth of this

fibrous tissue, we could then utilize its property of contraction for the purpose of destroying pathological cellular tissue; or, in other words, we might utilize nature's method in a pathological condition for the purpose of overcoming the growth of these tumors.

Now, I think we will all admit that internal medication will not produce the result aimed at. On the contrary, it seems possible that the result may be produced by the introduction into the substance of the tumor of an irritant sufficient to bring about the desired end. Methyl blue used in this manner has been recommended, but the results have not been brilliant. Alcohol injected into carcinoma of the uterus has, according to Schultz of Budapesth (*Pacific Medical Journal*), caused the arrest and disappearance of ten of these tumors, and epithelium developed over the eroded surfaces. Robinson, in the *International Journal of Surgery*, concludes that by judicious cauterization with chloride of zinc and potassa a great many of what would be deemed incurable cases can be brought to a permanent healing.

From these latter facts you will observe that the modern tendency is to the employment of agents which have the effect of increasing and actually causing the formation of new connective tissue in and through the growth. This, I am convinced, is along the right track, and I hope that its perfection will lead to the radical cure of a class of cases which has long been the opprobrium of the medical profession.

A curious coincidence is found in the fact that alcohol is generally regarded as the causative factor in cirrhosis of the liver, and Schultz found that alcohol injected into carcinomata of the uterus caused the arrest and disappearance of these growths.

DISCUSSION.

DR. RICKETTS:

The diagnosis and means of removing carcinoma of the breast are indeed interesting, especially to patients. So far as the diagnosis is concerned, the clinical history and appearance of the growth are practically the only means of arriving at a definite conclusion. Retraction of the nipple should have no bearing whatever upon the question, as this condition does not always exist, and may be present following any acute or chronic inflammatory condition of the gland. Abscesses, incised wounds, and breaking down of angiomata may all be followed by retraction of the nipple. Therefore I say that no reliance should be placed upon the retraction of the nipple as one of the diagnostic signs of malignancy of breast tumors.

As to the inducement of the growth of connective tissue being a means of destroying malignant growths, I would say that that is merely speculative. It is true that the injection of certain fluids, such as alcohol, bichloride of mercury, turpentine, benzine, sulphuric ether, chloroform, sulphate and chloride of zinc, etc., into the supposed malignant tumors have been followed by a diminution in many and the obliteration of a few.

The question of diagnosis is all-important. The condition found in the microscope depends who looks into the visual field. This is one of the greatest objections in relying upon the toxin treatment in the cure of sarcomata. While I do not question Mr. Coley's integrity in this matter of deciding whether or not by the use of the microscope the malignancy or non-malignancy of tumors, I do however question his ability or that of any other man to at all times decide this question by the microscope. I believe, however, that the honest way in which he has gone at this matter, together with his straightforward statements and the results secured by him, that it is the duty of every man to give his patients suffering from any malignant growth whatever the benefit of a doubt by faithfully following the directions laid down by its author.

Senn is one of the most prominent condemning the Coley treatment. He reported, at the surgical section

in Baltimore, nine cases of sarcoma and carcinoma which he had treated with toxin with negative results. It may be that none of these cases were favorable for the toxin treatment, especially the carcinomas, which Coley states have not thus far been amenable to this treatment. It may be that the toxin was not pure. It would be unfair to allow the treatment of these cases to have influence upon the great number treated by Mr. Coley, who reports a number of cases having remained cured after the lapse of months and years.

There are, of course, several ways by which the malignant tumors of the breast can be removed, viz., the knife, the various kinds of paste, the cautery, and electrolysis. I believe that the galvanic needle is one of the greatest agents for inducing the growth of connective tissue, but when the glands have become involved we have no treatment or operation, unless it be the toxin treatment, that gives us any assurance of the eradication of the disease. I believe that the knife is the means of greatest success and safety. No time or labor should be lost in attacking these growths and subsequent gland enlargement, not only the glands of the axilla, but those of the neck and those of the clavicular and cervical regions.

THE VAGINAL ROUTE FOR OPERATIONS ON THE PELVIC VISCERA.

D. Tod Gilliam, M. D., Columbus.

It is not many years since all or nearly all operations on the supravaginal pelvic structures were done *per vaginam.* In this category were operations for the removal of the submucous uterine fibroid, the evacuation of pelvic abscesses, hæmatoma and other fluid collections, and later those for ectopic gestation. Following this came the craze for abdominal section. The peritoneal cavity, so long the hobgoblin of surgeons, could now, thanks to aseptic methods, be invaded with comparative impunity. This gave a wonderful zest to the work, and it was prosecuted vigorously along all lines. A flood of light followed the knife into abdomen and pelvis, mooted questions were set at rest, false theories abandoned, and pathology revolutionized. Brilliant surgical achievements followed each other in bewildering profusion, and the infatuation spread. The knife was in every hand, and many women carried on the most prominent part of their anatomy the private mark of their favorite surgeon.

At this time the gynecologist who was not an abdominal surgeon, was clearly in disfavor. Did he attempt to remove a submucous fibroid, eliminate the uterine appendages, tap a pelvic abscess, or in any manner deign to interfere surgically with supravaginal structures through the vagina, he was ridiculed and characterized as a fossil. This more especially among English-speaking peoples. Meanwhile the Germans de-

vised and perfected a technique for vaginal hysterectomy, which slowly, but surely, made its way into general favor.

One of the cardinal rules governing the selection of cases for this operation was that the uterus should be freely movable — so movable, indeed, as to be easily drawn down to the vulva. An attempt to operate under other circumstances was regarded as reprehensible. Péan then conceived the idea of removing the immovable uterus. It was a bold thought, and well worthy the genius of the great French surgeon. He succeeded. His success was the signal for a storm of antagonism. The operation was denounced as a wanton and wicked mutilation. To remove the womb for pelvic inflammation was treason to all the better instincts of humanity. "If," say they, "we remove the tubes and ovaries, open and drain abscess cavities, curette, cauterize and pack the uterus, we have done all that is justifiable. Then, again, the mortality of Péan's operation must be appalling. Péan, it is true, with his marvelous skill, may meet with a measure of success, but the operation is not feasible and will die with him."

Péan replies: "A womb without tubes or ovaries is of no value. From it emanates poison that permeates and disrupts the pelvic structures. The Tait operation and curettage cannot remove the trouble." A portion of the tube remains. It is infected. The ligatures that surround it are infected and the infection spreads again. The woman remains an invalid. Look at the anatomy of the parts. Observe how the blood-vessels and lymphatics center in and are distributed from the uterus. Observe, furthermore, how the natural drainage of the pelvis converges to the same point. If this organ be removed it will have the effect of removing a plug from the bottom of a basin. From a physiological standpoint the uterus is simply a nest for the reception and matura-

tion of the egg — without appendages it is of no more account than a deserted bird's-nest. From a pathological standpoint, it is a hotbed of infection, distributing its deadly virus not only to the adjacent pelvic structures, but at times, by way of the blood and lymph channels, scattering it broadcast through the general system. As a diseased organ in the midst of diseased tissues, it blocks the way to a free and natural drainage, and retards or renders futile nature's efforts to eliminate peccant matter. As to the mortality, I find that it is even less than the best results in the hands of the best abdominal surgeons.

In time Péan was joined by Richelot, Segond, Jacobs and others, and backed by such spirits the operation was lifted to such prominence as to demand favorable recognition.

Let us look a little further into its claims. General pelvic infiltration and multiple pelvic abscess as the result of sepsis, has always been the bane of the abdominal surgeon. He knows when he meets such a case that he is to grapple with difficulties sometimes insuperable. He knows that he must reach tubes and ovaries and pus cavities through coils of agglutinated intestines and jumbled viscera. He knows that the adhesions are often dense, that the tissues are often soft and friable, and that rents in the bowel or bladder are likely to occur. He knows that the evacuated pus frequently inundates the peritoneal cavity and wells up through the incision; that in draining he must drain against gravity. He knows that the immediate mortality is great; that convalescence is tedious, with its loathsome accompaniment of discharging sinuses; that many cases never recover, but lapse into a state of hopeless invalidism. He knows that ventral hernia is almost a common sequence, that painful scars are even more so. He knows that the intrapelvic structures are often matted and disturbed in

their relations, that intestinal embarrassment or obstruction is very frequent. He knows all this and much more.

In the transvaginal operation the pelvic viscera, other than the uterus and appendages, are not disturbed. There is no handling of intestines, consequently but little shock. No breaking up of adhesions (except in so far as to liberate the uterus and appendages), no contamination of the peritoneum with purulent matter, but simply an elimination of irreparably diseased parts. These are taken from the central and under surface of the arch, and there is natural, free and uninterrupted drainage. Under this all peccant matter is discharged, exudations absorbed, adhesions dissolved, resolution and restoration complete. The patient is well. The mortality is less than by any other method. There is no hernia, no painful scar, no sense of insecurity, no languishing to a long-hoped-for death.

TECHNIQUE.

The instruments needed are a knife, two pairs long-handled scissors slightly curved on the flat; three bullet forceps, a set of Péan's retractors, four broad ligament and several hemostatic forceps. The retractors being introduced, the cervix is seized with bullet forceps, and a semi-circular incision made in front from side to side, being careful to avoid the vesical wall. A similar incision is made behind, but not so close to the cervix. From the junction of these incisions a linear incision three-fourths of an inch in length is carried outward on either side along the base of the broad ligament. This imparts greater mobility to the uterus and increases the distance between it and the ureters. With finger and scissors the cervix is freed from the bladder, a retractor being inserted into the opening and materially facilitating the process.

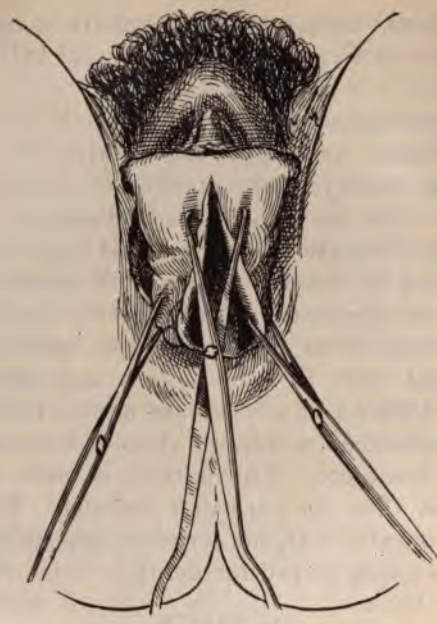

FIG. 1.
MORCELLATION OF THE ANTERIOR UTERINE WALL.
From *American Journal of Obstetrics.*

In like manner, the cervix is freed behind. Forceps are now applied to the broad ligament on either side so as to include the uterine arteries, and the portion thus secured cut through, keeping close to the uterine wall. The side retractors may now be dispensed with, the forceps taking their place. The cervix is next split up on either side, and the posterior half amputated. The anterior half is also amputated, but before complete severance, a new hold must be taken by the forceps on the anterior uterine wall above. From this time on the operation consists in dissecting off the bladder, splitting the anterior uterine wall longitudinally in the middle

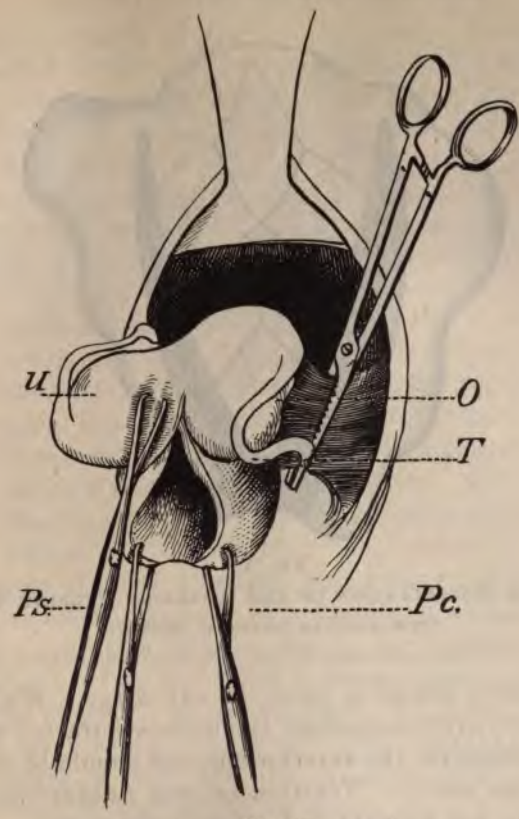

FIG. 2.

EVERSION OF THE UTERUS AND CLAMPING OF THE BROAD LIGAMENT FROM ABOVE.

From *American Journal of Obstetrics.*

line, seizing the same on either side and cutting it away piece by piece until it is destroyed and the fundus reached. (See Fig. 1.)

The anterior retractor should continually follow the finger into the depths of the dissection, and the traction forceps should always secure a new hold on the

FIG. 3.
OBLIQUE MORCELLATION OF THE ANTERIOR UTERINE WALL.
From *American Journal of Obstetrics.*

tissues above before a piece is cut away. When the peritoneal cavity is reached, the narrow retractor should be substituted for the anterior one, and should be pushed up into the cavity. Traction on the fundus will now cause it to roll forward and out into the vagina. Forceps are now applied to the upper half of the broad ligament from above downward, and the uterus cut away. (See Fig. 2.) Should it be practicable the adnexa are removed at the same time, otherwise they may be left. Pus depots, whether in the tubes or elsewhere, are opened, washed out and drained, care being taken to protect uninfected parts by gauze packing. Adhesions to the uterus can usually be separated under the eye after its inversion into the vagina. A pad of iodoform gauze is placed over the tips of the forceps to protect the intestines from injurious pressure, and between the forceps

and vaginal walls to protect the latter. The forceps are removed at the end of forty-eight hours, and after gentle irrigation the dressing replaced. The gauze pads above the vaginal vault are not removed for six days. (See Fig. 3.)

Notwithstanding the manifold advantages of the vaginal operation as detailed above, it is not, as I believe, applicable to all forms of pelvic inflammation, or all degrees of the same. There are limitations to its range of usefulness, as also its feasibility. For some years, under the domination of a passion for salpingectomy, every tube that could be made out to have undergone any pathological change was condemned to the knife. As a result there was a woeful and wanton unsexing of women to the incalculable detriment of society. For the last two or three years we have been gradually coming back to our senses, and we find that under favorable conditions many of these ailments pass away entirely, while very few, indeed, pass on to a condition absolutely demanding operative interference or the sacrifice of the appendages. I do not think it proper, therefore, to remove the adnexa in many instances, and certainly not to remove the uterus except in the most aggravated cases. The danger is that this, like all other popular movements, will be carried to extremes, and in the eager chase for notoriety, and ofttimes through self-imposed blindness, there will ensue such a rage for vaginal hysterectomy as will do irreparable damage.

It was the dread of multiple pelvic abscess, the fearful mortality attending the operation for the same, and the very unsatisfactory results ensuing, that impelled the celiotomist to attack the diseased appendages at an early period in order to forestall such dire consequences. It is in this connection that the great value of the Péan operation is manifested.

Relative to this, it may be said that the celiotomist's extremity is the vaginal surgeon's opportunity. In other words, when the destructive changes of pelvic inflammation have gone to such an extent as to be practically beyond the reach of the celiotomist, Péan steps in and by removing the uterus *per vaginam* makes possible a perfect recovery. Knowing this, the conscientious surgeon will keep hands off. As a result, thousands of women who have hitherto been sacrificed to the misguided zeal of the surgeon will resume the functions of life and maternity, and tens of thousands of children, elsewise unborn, will add to the strength of nations.

UTERINE REFLEXES.

WM. H. HUMISTON, M. D., CLEVELAND,

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Every specialist has to meet the frequent insinuation that he sees no farther than the organs to which he devotes his time and practice. I believe all worthy the name of specialist do make very careful examinations, and take into consideration the various symptoms and manifestations that are brought out by a careful examination of all the principal organs of the body.

I do not regret the time spent in active general work, for it has been a great educator; and yet I am making diagnoses to-day of cases that I had seen eight or ten years ago, and treated them for a symptomatic trouble, with but little if any permanent relief. These same cases, after years of semi-invalidism, do get well when the origin of their suffering is discovered and treated appropriately.

The literature on reflex troubles arising from uterine diseases is not profuse, and it is only within a few years that the attention of the profession has been especially called to them. Dr. McNaughton Jones has written as fully upon the subject as any one other physician, and I shall quote him considerably, and the cases I report will go to substantiate many of his claims as to the origin of the reflex troubles from which so many women of to-day suffer.

The reflex manifestation of uterine disease is too often treated without taking into account its origin. It is frequently treated exclusively with general remedies, and the resulting failures throw discredit upon one's professional attainments. "I wish to protest against this inversion of cause and effect, especially in the instance of the uterus and ovaries, inasmuch as their complex and subtle physiological relationships, where these are functionally or organically disturbed, are made more immediately manifest in their effects on other organic functions, especially those of the nervous system, than is the case with the other viscera. Also it has to be remembered how variously constituted are different types of women to resist the effects and consequences of certain deviations from their normal conditions, and that the intensity of pain appears to be present in many instances in inverse ratio to the pathological conditions sought for to account for it. It is no uncommon occurrence to find extensive ovarian, tubal, or uterine disease, and yet pain be little complained of. This is well-known to be the case in uterine fibroids, where the earliest symptoms of distress are those due to mechanical pressure, or interferences caused by the large size of the tumor. And the same applies to ovarian or parovarian cysts. In fact, so far as the disturbing element — pain — is concerned, we see it frequently in its greatest intensity where no morbid condition of the uterus is discernible, and it is equally true that ovarian pain and dysmenorrhœa occur constantly with but slight pathological changes to account for them."

This is well illustrated in those extreme cases of dysmenorrhœa existing for years, where all treatment has failed, and where no abnormal condition of the pelvic organs could be detected. Exploratory incision has revealed sclerotic ovaries, and their removal brought permanent relief. Here it is important that an early diag-

nosis be arrived at, and years of suffering and emaciation avoided.

"We all know by sad experience, of the years of useless suffering that might have been spared, of lives that might have been saved, of the ruin of conjugal happiness that might have been averted, of maternal usefulness that might have been preserved, had an accurate diagnosis been arrived at in the earlier stages of uterine disease, and a proper line of treatment adopted. Surely it would be safer in such cases for us to fall into the error of arguing from the local to the general, than into the greater blunder of ignoring the local in dealing with the general." And we can only hope to achieve this important end in the treatment of diseases peculiar to women, when physicians are brought to realize the distant bearing that even a comparatively trival affection of her sexual organs produces on the general physical and mental well-being of the woman.

So many cases come complaining of the brain, the eyes, the nose, the heart, the lungs, and the abdominal viscera, that unless one makes a thorough examination of the pelvic organs he is liable to error in accounting for the symptoms of distress.

"The connections between the vagina, uterus, and ovaries, through their nervous supplies, with the splanchnic nerves, and with the spinal cord in the sacral and lumbar regions, through the pelvic and hypogastric plexuses, may anatomically explain many of the reflex phenomena that follow stimulation or irritation of the ovarian and uterine nerves consequent upon disease in the ovaries or uterus."

I shall here mention a number of the prominent symptoms that a woman may suffer from who has disease of the pelvic organs: Anæmia, headaches, fullness in the head, loss of memory, neuralgias, neurasthenia, painful spine, numbness of the extremities,

stiffness in knees and ankles, insomnia, epilepsy, melancholia, nausea and vomiting, dyspepsia, diarrhœa, obstinate constipation, gastralgia, irritable heart, dyspnœa, irritability of and pain in rectum, frequent and painful micturition, inability to walk.

I quote from Dr. Jones the following: "In prolonged disorders of the uterus resulting in enlargement, hyperplastic deposits, or a process of fibrosis following on arrested involution, in those secondary pathological conditions attending upon lacerations of the cervix, in deep erosions, in unrelieved versions and flexions, in tubal enlargements and displacements, and in chronic affections of the ovary as sequelæ of pregnancy, we find not only these reflex conditions present, but more aggravated pathological consequences, and more serious disturbances of function. We see this exemplified in the eye, in the results of thrombosis and embolism, as retinal infractions or extravasations, with their secondary consequences, atrophy and partial or complete loss of vision; in the nose, in epistaxis, chronic nasal catarrhal states, and perversions of smell; in the ear, in labyrinthic apoplexy, with all the symptoms characteristic of Meniere's disease, and labyrinthine vertigo and deafness; in the brain, in hallucinations of smell and taste, illusions and delusions, from slight erraticisms in mental action to complete perversion of the mental faculties; and in the nervous system generally, in such evidences of instability as aggravated hysteria, neuralgias, hystero-epilepsy, and epilepsy; in the skin, in manifestations of such cutaneous nerve-disturbances as occur in prurigo and herpes, or in the appearance of acne or eczema. The occurrence of nervous alopecia and the aggravation periodically of any chronic cutaneous disorder, as for instance psoriasis and erythematous lupus, are not infrequent results of menstrual disorders. In the heart, irritability in action and hæmic

murmurs — conditions which frequently lead to a permanent hypertrophic state, or are felt through attacks of syncope, with evidences of low vascular tension generally, as shown by an habitually compressible pulse, are common. We find in the stomach gastric irritation, with possible congestive changes, which may lead up to gastric ulcer. There are atonic conditions of the bowels which tend to constipation on the one hand, or on the other to diarrhœa, while disordered sexual function and abnormal perimetric states frequently lead to congested conditions of the rectum, complicate hæmorrhoids, and are apt to produce that irritability of the sphincters so conducive to costiveness."

To this summing-up might well be added the close sympathy existing between the mucous surfaces of the uterus and vagina and the respiratory tract, which has been demonstrated to my entire satisfaction.

"It is cruel to a woman to call her 'hysterical, neurotic or hypochondriacal,' while she suffers from any local affection of her pelvic viscera."

The cases I report comprise only those which have been seen and examined by other physicians both before and after my treatment. This precludes reporting some of my most rare and interesting cases.

CASE I.

The following history was written out by the patient, as she was unable to converse with anyone longer than two or three minutes at a time. I think it a clever description of an aggravated case of reflex disease.

Miss L., aged 26. Primipara. Spinal trouble when a child:

"I remember often stopping playing to pull off my shoe in order to rub my feet to stop the feeling of cramping and numbness. I was helped then by electricity and change of climate. No more noticeable trouble un"

was twenty, though we were always careful about my lifting or sweeping, etc. First sore spot in spine came in 1886.

"I have been now four years in bed, never able to sit up an hour at a time. A year ago I used to sit up at the table for dinner and supper, lying down almost all the rest of the time. Most of the four years I have not been able to do as much, and cannot now.

"The second year I got well enough to walk thirty rods twice daily, undressing and going to bed between times. I must have fallen two hundred times. Sometimes my back gives out without the least warning, and I drop right down wherever I am—in the middle of the street or anywhere. Sometimes it feels as though a string fastened at the back of my neck pulled me over—generally there is no sensation accompanying the fall, but I am pretty sure that the spot which gives out is right in the 'small of my back.' I used to wait a moment for strength to come back, and then go on; but a year and a half ago I fell (a fall apparently just like the harmless ones that had gone before), and since then I have never been able to go out of the yard.

"After falling, after talking too much, or any excitement, that place in the small of my back feels 'broken,' and I cannot walk at all again.

"Cramping or numbness—not really either—a prickling, indescribable, distressing sensation, begins sometimes in one part, sometimes in another, spreads all over, head, back, tongue, face, arms, limbs, and across abdomen; seldom lasts more than two hours, however.

"My left knee troubles me; left shoulder is sore to the touch. The spine is very much so always, especially in five spots. I cannot wear any band around my waist because the pressure, even for a minute, on that worst spot is unendurable. Even in college the girls had to learn that I could not endure the touch even of an arm

thrown around me. The whole spine aches hard all the time.

"Since fall of 1889 have not been able to read, write, or talk much. I see very few friends, and then only for ten or fifteen minutes, and often suffer days, or weeks, and in two cases months in consequence. Talking sets my head to thinking too furiously; I usually keep on talking to friends silently for hours afterwards.

"Sometimes when my mind gets to running so uncontrollably on some subject—these symptoms, for instance —it is easier for me, and I have the nervous strength, to write it down, though I cannot ordinarily write when so.

"My mind never wanders when talking, but sometimes, if I use it too long, it gives out suddenly, and I cannot force it to think any longer on that subject, though perhaps in a few seconds it will consent to work in some other line. I am often troubled to think of the word I want to use.

"For two years steady, constant pain, brought on by being up too long and excitement.

"Chronic constipation. Least medicine affects my bowels unfavorably—griping pains, or too laxative. I am not so affected by other class of medicines. I have taken a good deal of medicine, usually with merely negative results.

"Neuralgia. Excitable temperament greatest obstacle to recovery (I think). The presence of any other human being — even my mother or sister — whether talking or quiet, seems to arouse and excite me.

"I don't know how to act sick, and it has happened many times that the days when I felt as though I couldn't speak or smile, are the very times when friends will exclaim, 'Why, how bright you are looking to-day.'

"I am very restless always—never sleep in the daytime, but fairly well at night.

"Gain rapidly when I gain at all, but it takes so little to bring on a relapse—change of weather, least nervousness, or excitement, overdoing—so it is relapse four-fifths of the time.

"I look so well that it is hard for anyone –for me myself—to realize how very little nervous strength I have. We have had to learn from many hard experiences what a very tiny straw it takes to break—not the camel's back, but mine."

This case was referred to me by Dr. H. S. Upson, who after a most thorough examination failed to detect any disease of central or spinal origin.

November 7th, 1893, patient was brought to my private hospital — had to be carried from the train. It was nearly a week before she recovered sufficiently for me to make an examination. Heart, lungs, and stomach normal, urine examination negative except abundance of urates. Uterus prolapsed, retroverted, and enlarged. Both ovaries prolapsed, swollen, and tender. Copious milky-colored discharge from uterus. Chronic congestion of rectum and irritable sphincter muscle. After local treatment and hot douches for a week I succeeded in replacing uterus by placing patient in genupectoral position, after which a pessary was inserted. Relief came within a few hours, manifested by a marked relief of the head symptoms, and the next day the back felt easier. Curettement was made December 2, 1893, and a free amount of succulent hypertrophied mucous membrane removed. The improvement was marked and steady from this time until she returned home, February 21, 1894, able to walk to the train from the carriage. She has continued to gain until now, May 1, 1895, when she reports that she is in the midst of house-cleaning, and says, "It is simply marvelous how much I have been able to do and endure this last week. My recovery has seemed to be more than 'a nine days' won-

der in our little town. I do not even like to remember what my condition was, and how I was living two years ago."

CASE II.

April 15, 1893. A case of severe dyspnœa of three years' duration, caused by areolar hyperplasia of uterus. Referred by Dr. Gage, of Dover, Ohio.

Mrs. S., age 36, married at 21, native of Michigan, one child nine years old, not a difficult labor, no miscarriages. Father and two sisters died of consumption. Mother and two sisters living. First catamenia at 16—regular and normal as to amount and time. Present illness began five years ago with neuralgia of stomach, which has continued. Dyspnœa began three years ago following an attack of sick headache at menstrual period. Attacks of dyspnœa became more frequent and persistent, always followed by a chill. Attacks were precipitated by walking, or riding in a carriage. Did not lose consciousness, but became exhausted and prostrated. Four to six attacks daily, and at times would last all day. The worst attack lasted four hours, following a severe headache. Had treatment by several physicians with no permanent relief. Was called "hysterical" breathing. Lost flesh steadily, now weighs 106 pounds—a loss of 16 pounds in a few years.

Patient was brought to me with the request that I might agree with the diagnosis of hysteria. In talking to, and observing patient, nothing of this nature was manifest. Patient said the trouble was mortifying to her, and she made unusual efforts to control the attacks, but could not. Examination found temperature normal, pulse 84, heart and lungs normal, urine examined with negative results, tongue slightly furred, and some epigastric tenderness on pressure. Abdomen not distended or sensitive. Complained some of backache, no leucor-

rhœa, or bearing-down distress. Rectum examined with negative results. One point in her history gave me a clue to her difficulty, and that was she had a child nine years ago, and had not been pregnant since, although both she and her husband desired to have more children. I believe that some injury had been done to the uterus which might account for her trouble. Local examination made; vaginal outlet normal, os uteri very firm and resistent, and upon pressure very sensitive, which produced an attack of dyspnœa, lasting fifteen minutes. There was a tenacious discharge in cervical canal; ovaries could not be palpated. From the hardened, swollen, congested blue look of the cervix I diagnosed areolar hyperplasia, and advised rest in bed, long hot-water douches, boroglycerine tampons, curettement, to be followed by galvanism. This was accepted and carried out. Curettement (under cocaine) gave rise to an attack of severe dyspnœa lasting thirty minutes.

After treatment continuing over a period of four weeks, she was able to walk without precipitating an attack; she rapidly improved and made a gain of 16½ pounds. During the six months since operation and treatment she has had but two slight attacks, and now considers herself well, as she weighs more than she had in ten years, and is able to perform all the household duties of a farmer's wife. These two slight attacks were due to overdoing and excitement, in working for and attending a church fair, and having unexpected company appear.

CASE III.

Entered my hospital April 18th, discharged May 12th. A case of phthisis, or lobular pneumonia, first stage, in which general treatment failed to give relief.

Mrs. H., age 24 (patient of Dr. John P. Sawyer), born in New York, married four years, one child

two years old. First menses at ten years of age, very painful, duration four days, flow moderate. Pain continued during the flow. Had a long, difficult labor, lasting from Wednesday until Sunday. Health has been impaired ever since confinement. Complains of backache, headache, chills with slight fever occasionally, indigestion, leucorrhœa, menstruation not regular since birth of child, but suffers less pain. In March, 1893, began to cough badly, and suffered pains through lungs and shoulders. The weak stomach and nausea has been present since birth of child.

In July this year she consulted my friend, Dr. John P. Sawyer, who prescribed for her, and I take from his notes of the case the following in reference to her condition: Patient examined at noon, temperature 99.2°, pulse 84, physical exploration revealed muscle tremor, slight dullness and moist small rales over right supramammary region. No posterior examination made. The doctor saw her for a few times, and as there was no improvement, he kindly referred the case to me, believing as he then stated that the trouble in the pelvic organs gave rise to her chest symptoms.

I saw her the latter part of August, and found her condition as follows: Face flushed, hectic, temperature 100⅘°, pulse 100, moist rales in right apex, slight dullness, expectorates freely, night sweats, and persistent cough, complete anorexia, nausea. Had lost ten pounds since cough began. Stomach distended with gas, and tender to pressure. Vaginal examination: Vaginal outlet normal, thick mucopurulent discharge coming from vagina, cervix very greatly swollen, extensive laceration, erosion, uterus enlarged and tender, appendages swollen and sensitive. Patient entered my hospital, and was put to bed, and all medication internally suspended. Local treatment instituted, consisting of

absolute rest, massage, long-continued hot-water douches, and iodine-glycerine tampons to the uterus.

Had some flowing the day after entering hospital, September 5th, and two weeks prior a flow lasting several days. She remained about the same, no marked improvement. On September 12th began flowing again, and on examining the discharge I saw evidences of retained decidua. I called Dr. Sawyer in to confer about making immediate curettement. He deemed it wise, and I did so September 14th, and removed a large amount of decidua.

After 48 hours she began to show marked signs of improvement, cough less frequent, nausea subsiding, appetite returning. Beginning September 18th she menstruated for three days, with no pain, and moderate in amount.

October 1st. Patient coughing but little, improved in every respect, very hungry, and digestion good. Required every second night a small dose of compound licorice powder to move bowels. No other medication internally. October 1st performed trachelorraphy, cocaine anesthesia, with no pain. Rapid improvement to October 8th, when stitches were removed. No cough, disappearance of small moist rales.

October 9th sitting up and feeling well. Vaginal examination found uterus small and not sensitive to pressure, some tenderness in vaginal vault. I now used the galvanic current, positive pole in vagina, negative pole over whole lower abdomen, twenty milliamperes for five minutes, repeated every second day for one week, after which the tenderness disappeared.

Allowed to go home October 16th. Came to see me at office October 26th feeling well and had gained ten pounds; no pain of any description, cough entirely gone.

One year later reports herself in good health, no cough, and able to work hard, has made a gain in

weight of twenty pounds; was seen by Dr. Sawyer at this time.

CASE IV.

February 23, 1893. A case of chronic gastric catarrh, with active fermentation, and distended bowels, together with intense headaches. An invalid for six years. Kindly referred to me by Dr. D. P. Allen.

Miss M. A., Ohio, age 20, primipara, came June 12, 1894, and went home August 5, 1894. April, 1895, well. Catamenia at twelfth year, regular but painful, duration one week, profuse. Was always delicate and very weak, had scarlet fever when four years old. Was able to attend school but little, and then for but a half day. Up to the present illness, which began six years ago, she had been usually well — not strong, however. Has had leucorrhœa ever since first menstruation. At age of fourteen her stomach trouble began, vomiting constantly, and troubled with large quantitias of gas in stomach, pain severe, unable to retain anything taken into stomach, and was nourished a long time by rectal enemas.

"Insane headaches" was the expression used by patient in describing them. The pain was so severe in occipital region that it nearly dethroned her reason. Pain in head was constant with exacerbations. Hiccough and belching of large quantities of gas for two hours after meals. For a period of eight months was unable to walk a step; any slight noise in the house disturbed her greatly, so all kitchen work was suspended, and the family took their meals out. Insomnia; for seven months could not sleep without quieting medicines. Obstinate constipation; enemas failed to produce any effect.

She was treated by Dr. Root for uterine trouble; a pessary was used, but it set up so much irritation it was

removed. A consultation of physicians was held, three in number; two agreed that it was a uterine difficulty, the third disagreed, calling it "necrosis of the bones." Improved a little, so that in March of this year she was brought to this city to consult Dr. Allen. Was unable to walk but a few steps, and it was with great difficulty and much effort that she reached his office. The doctor administered a stimulant, and after a short time made an examination. He found the vagina so congested and sensitive that he was unable to reach any definite conclusions. But as the patient was so reduced and nervous he thought a change from home with rest, massage, and electricity would be the best thing for the patient, and kindly referred her to me. I was out of the city, and her mother decided to take her home, and come up again. The fatigue and excitement of the trip made her worse, and it was three months before she was brought back to the city.

I found a thin, wasted, nervous patient, dark circles under eyes, lips slightly cyanotic, pulse 120, temperature 97½°. Heart beating so rapidly I could not determine valvular lesions, although the heart was enlarged. Put patient in bed, and the next morning while she still remained in bed I completed my examination; found aortic and mitral valvular disease; pulse was now 90. Epigastric region very sensitive, could not tolerate any pressure, stomach distended, and great quantities of gas hiccoughed up; the noise of this effort was so great as to be heard in adjoining rooms. Vaginal examination: purulent creamy discharge, vagina sensitive and reddened, uterus low down, retroverted, very painful to pressure—so much sensitiveness could not make a bimanual examination. After a few days' treatment with packs and hot-water douches, I was able to finish the examination; found both ovaries prolapsed and swollen, the right being the larger of the two. Special examina-

tion revealed the os eroded, swollen, and very blue outside the limit of the erosion. Cervical canal filled with tenacious secretion. I realized I had a very complicated case, and not a very promising one, yet I felt that if I could improve the heart, and secure a better and more even circulation, I would have better digestion, and better digestion meant a great deal to this sufferer. All starchy food was stricken from her diet, alkaline drinks an hour before meals ordered—strychnine and digitaline for the heart. Locally, tampons of boroglycerine to elevate the uterus and ovaries, and reduce the congestion. She improved upon this daily for a week, when electricity was given, and greater improvement was noted after a few applications. The discharge was so profuse from the uterus that I curetted it thoroughly, using cocaine, with good effect. Continued to gain steadily, pulse stronger, digestion better, gas diminishing, general improvement. I kept her for eight weeks, and she returned home alone; was able to walk without exciting pain. She has returned to see me four times, coming alone, improvement marked each time. Her last visit was on last Friday, when I found her still rapidly improving, had gained twelve pounds, pulse 86, temperature 98⅘°, no leucorrhœa, erosion healed. Valvular murmurs still present. Uterus still a little sensitive to touch, left ovary could not be felt, the right ovary smaller, but still tender and a little swollen. Dr. Allen kindly made an examination of the patient the same day, and found the local organs in a satisfactory condition. The patient goes out daily, and is becoming interested again in the duties of life. Last report April, 1895. Has gained twenty pounds in weight, has good color, and is able to do the ordinary duties of the house.

THE VALUE OF "LOCAL TREATMENTS."

J. F. BALDWIN, M. D., COLUMBUS,

Professor of Surgical Gynecology, Ohio Medical University; Gynecologist to Protestant Hospital, etc.

Up to about twenty years ago, the work of the gynecological specialist, in addition to an occasional ovariotomy, plastic operations on the vagina and perineum, and the invention and application of multitudinous pessaries, consisted almost entirely in what was known as "local treatment" of his female patients. By local treatment was meant applications to the vault of the vagina, the cervix and endometrium of such medicaments as Churchill's Tincture of Iodine, Battey's Iodized Phenol, nitrate of silver, and occasionally the hot iron. In following out these methods, which were those of the late Prof. Ellerslie Wallace, the writer, twenty years ago, weekly transferred from one page to the next of his visiting-list, the names of twelve or fifteen patients who were receiving once or twice a week these "local treatments." Now, for months at a time, his visiting-list contains the name of not a single such patient, and what is true in his experience is true in the experience of multitudes of his brethren. Has this change been entirely salutary, or has the pendulum swung to an extreme from which it will, sooner or later, part way at least, return?

It was to determine, if possible, approximately at least, the feeling of prominent gynecologists that I instituted, some time ago, quite an extended correspond-

ence on this subject. A majority, indeed a large majority, of those from whom replies were received have entirely abandoned all these forms of local treatment, the nearest approach to anything of the sort tolerated being hot-water douches and the applicatiou of tampons saturated with glycerine, boroglyceride, ichthyol, or some similar agent. Cases not relieved by these methods are subjected to thorough dilatation, curettage and packing, or to the still more radical procedure of removal of the appendages or of the womb itself, either by abdominal section or through the vagina.

I think we all fully appreciate the fact that medical men are as liable to be led away by fads as are members of other professions, and the question to be determined is whether, after all, these milder means may not possess a certain value, and whether their use in many cases would not result in as satisfactory, though not as brilliant, results as the more modern and more radical surgical procedures.

Probably the most common cause assigned for the use of these local treatments was "ulceration of the womb." We now know that such so-called ulceration is in a vast majority of cases due to laceration of the cervix and consequent rolling out of the lacerated surfaces, together with the enlarged Nabothian follicles and thickened mucous membrane. Stimulating applications to such a surface will produce temporary benefit, and will perhaps even cause the surface to apparently heal over; but on cessation of treatment the diseased condition promptly returns to its original state and the patient has been in no ways benefited. Or if the surface remains scarred-over, the source of irritation remains, and the liability to resulting malignant degeneration. True ulceration of the cervix doubtless exists, but it is either syphilitic, tubercular, or cancerous in character. If syphilitic, local treatment is not

necessary; if tubercular or cancerous, surgical procedures should be promptly instituted.

The next most common cause for local treatment was endometritis. If the endometritis were of a simple and inflammatory type, local stimulating applications doubtless effected a cure; but in a great majority of cases endometritis, as is now recognized, is specific or septic in character, and is best treated by dilatation, so as to secure drainage, and thorough curetting of the affected surfaces and packing with gauze to give pressure and maintain drainage. Possibly there is no other disease which may be so well compared with chronic endometritis as chronic nasal catarrh; and certainly those physicians who have made a specialty of diseases of the nose have found caustics of very little avail in the treatment of these chronic conditions. They resort quite promptly to the use of the saw and chisel to straighten a deflected septum, and to these instruments or to the curette, or sometimes to the galvanic cautery, to remove diseased membrane or the hypertrophied turbinates. Drainage here, as in endometritis, is one of the most important considerations.

What physician would expect to be successful in treating a fistula with tincture of iodine or carbolic acid applications? Every intelligent physician well knows that the sinus must be laid open and the fistulous tract destroyed before he can expect to effect a cure. Now and then, to be sure, a recent fistula may be cured by these topical applications, but so rarely does success follow this line of treatment that the exception serves merely to prove the rule.

For vulvitis and vaginitis, or for simple uterine or periuterine congestion, rest and hot-water, simple or medicated, with hygienic measures, will accomplish about all that can be secured.

For cases of retro-displacement of the uterus, or simple prolapse, if recent and uncomplicated, a properly adjusted pessary will almost invariably give relief and will sometimes effect a cure. Even if adhesions are present, especially if the result of post-partum peritonitis, persistent tamponing of the vagina may cause these adhesions to disappear and permit the adjustment of a pessary.

For cases presenting exudates in the pelvic connective tissue and thickening of the pelvic peritoneum, hot-water and pressure by tampons will sometimes bring about rapid absorption and effect a cure. The exudates which thus yield are most frequently those which are the result of post-partum inflammation. When they are the result of specific infection, these local measures will accomplish little if any good. Painting the vault of the vagina in such cases with tincture of iodine, or iodized phenol, I have never found a benefit. Indeed, I have never been able to attribute much benefit to the local application of iodine to any part of the body. I know it is used widely to produce absorption of effused fluids and exudates, but I must confess that I have never seen a case in which I could clearly attribute any especially beneficial results to such applications.

Nowhere more than in pelvic disturbances does the practitioner need to feel the importance of recognizing the constitutional origin of many local diseases. Many complications of pelvic disorders will be found to be due to local congestion, which in turn will be dependent upon a weak heart, or obstructed portal circulation, or to simple lack of bodily exercise. Neuralgia is said to be the cry of the nerves for better blood, and malnutrition and anemia will be found, in many cases, to be at the foundation of pelvic complaints, associated with manifestations of hysteria and neurasthenia; and in many of these cases local treatment, by simply keeping

the mind of the patient directed to the pelvic organs, greatly retards or even prevents a cure.

No paper on local treatment would be complete which did not contain some warning as to the dangers necessarily connected with such methods. Price, Goodell, Emmet, and others, have called attention to these dangers in very positive language. Some of the most complicated cases which finally reach the gynecological surgeon are those whose history indicates much local tinkering and repeated attacks of more or less severe pelvic peritonitis resulting therefrom. The cotton-wrapped applicator, saturated with some powerful germicide fluid, may carry, probably does, with its bane its own antidote; but less powerful applications, and especially the death-dealing sound, afford no such protection. While I have frequently found practitioners who claim to dilate and even curette the uterus in their offices, I know of no experienced gynecologist who does not perform those operations under full anesthesia, and with as thorough aseptic precautions as he does his abdominal sections.

In addition to the dangers of septic infection from unclean instruments, is the danger of innocently cutting short an early pregnancy. Indeed, I know of at least one physician who adds somewhat materially to his income by the use of these applications at monthly intervals among his society patients; among whom the axiom that "delays are dangerous" holds good, if not in its original sense.

Conclusions: First—Local treatment of the endometrium possesses certain inherent dangers.

Second—Acute or subacute inflammatory conditions of the uterus, if not specific or septic in character, may be treated, sometimes, with advantage by local stimulating applications, although if good drainage is secured the hot-water douche and glycerine tampons com-

bined with hygienic measures will probably bring about as good results with less risk, with less annoyance, and with less expense.

Third—For chronic conditions, these usually being dependent upon either specific or septic infection, local applications will accomplish little or nothing and may do great harm, either by exciting acute inflammatory complications or by causing the postponement of more radical measures.

Fourth—In cases of adhesions from post-partum inflammatory exudates, properly applied vaginal packing with some elastic material, such as absorbent wool, will afford more prompt and satisfactory results than will local applications to the vaginal vault and endometrium.

DISCUSSION.

DR. RICKETTS:

This is a very important subject, brought before us in such a practical manner by Dr. Baldwin, and the essayist is very correct in saying that the uterine tinkerer is a thing of the past. I know, when I agree with what the doctor has said in regard to this man, who went abroad in the land, I am antagonizing quite a source of income to that gentleman-tinkerer. As to ulceration, I am glad that the teaching we had a few years ago on the appendages is relegated to the past. As to hot-water injections, I am of the opinion, Mr. President, that an endometritis—and by that I mean a metritis extending from the cervix to the fundus—is never cured by hot-water injections. It demands attention just as much as iritis. It is a disease that you can't reach by hot-water injections. If this condition is present, you have to resort to measures more radical than we have formerly been taught to make use of; we must use the curette. I know there is one plan of treatment that has been advocated, that now is very popular in the treatment of these cases, and that is the treatment recommended by Dr. Pope of packing these uteri with gauze, after curetting. The

packing with gauze is not essential in all these cases to the extent we have been taught or led to suppose it is. The dilatation and curetting is sufficient to bring about a cure in most of these cases. As to pessaries, I am glad I can say I never adjusted one.

CIRCUMSCRIBED THORACIC EMPYEMA.

G. A. Collamore, M. D., Toledo.

John M., aged 21, had grip in the winter of 1889-90, from which he never fully recovered. Also, in 1892-3 he had the same disease, and again in 1893-94. In this last attack especially he complained of pain in his breast, a not unusual symptom. During summer of 1894 he had almost continuously what he called rheumatism in right shoulder; in August pain in right breast, which he attributed to a sprain. Soon after a swelling, the size of a silver dollar, appeared at third right intercostal space, which after two weeks assumed the appearance of an abscess. This was opened and washed out, the discharge ceased and it was apparently nearly healed, when on November 10th it again began to discharge. On November 18th he had a severe chill followed by high temperature, with aching and soreness over the whole body; on the second week there were the characteristic typhoid maculæ over the abdomen, tenderness and gurgling in right iliac fossa, etc. Improvement began about December 10th, but a few days later he became subject to paroxysms of fever and profuse perspirations. He never had cough until December 19th, when he coughed continuously for more than twenty-four hours.

I saw him first December 20, 1894. He was pale, emaciated extremely, but had a bright look and could walk fairly well. Examination showed the heart nor-

mal, also left lung. On the right side posteriorly fair resonance, normal respiration, round to anterior axillary line irregularly prolonged downward; dullness and great tenderness over anterior right chest, and an opening discharging pus at third intercostal space, edge of sternum. As the drainage appeared sufficient, it was not interfered with.

The fever and sweating continued with occasional cough, and on December 28th he raised some pus; also on the 31st. On January 2d, under an anesthetic, the abscess was explored and appeared not to be very extensive, the opening enlarged and a drainage tube inserted. On January 17th the abscess was found to be more extensive than before supposed, extending above the second rib and below the sixth rib, and laterally in an irregular line about five inches to right of sternum, and to the left in places to middle of sternum. By passing the finger under the sternum the pericardium was readily felt and also the pulsation of the heart.

Two drainage tubes were inserted, one from first intercostal space to third space, and a second from original opening in third space obliquely downward and outward, emerging at sixth space. These drained the cavity perfectly, and it was hoped that improvement would follow and the abscess cavity gradually close. In a few weeks it was seen that the posterior wall of the cavity, that attached to the lung, was so fixed by adhesions that expansion did not suffice to raise it to the costal surface. The only remaining operation, therefore, was to allow the costal surface to sink down to meet the pulmonary surface. This was done on February 14th, by resecting the cartilages of the second, third, fourth and fifth ribs. The upper drainage tube was removed, as unnecessary. The patient, however, did not materially improve, though there was not much purulent discharge, and a

fair amount of strength and appetite. Emaciation continued.

On March 10th he was attacked with severe pain in lumbar region, with nearly total suppression of urine, it amounting to from two to eight ounces per diem, and highly albuminous.

About March 14th erysipelas set in and continued in a moderate degree to spread, reaching his face about the time of his death, March 24th.

The fatal termination, though not unexpected, was doubtless hastened by the acute nephritis and erysipelas.

At the autopsy it was found that the apex of the right lung held a circumscribed abscess, not communicating with pleural abscess, the entire lung being solidified and considered to be in the condition called fibroid degeneration. The left lung was normal, pleural cavity nearly filled with a sero-sanguinolent effusion. I was not present at the post-mortem examination, and should judge that the consolidation of right lung and pleural effusion on left side were events closely preceding the fatal issue.

The report of this case has been suggested by the fact that, in my experience, this form of empyema is a very rare one. In a practice of many years it has been my fortune to see but one case except the one here reported. It was in the same location, had opened spontaneously, and was attended with the same erosion of the ribs and tendency to sloughing. It was also in a young man and terminated fatally.

The ordinary form of empyema, that which fills the thoracic cavity with pus, we are familiar with. Loomis and other authors state that the purulent fluid may be confined either to the posterior or anterior half of the chest by old adhesions. This presupposes a form of plastic pleurisy with limiting adhesions. It is easy to imagine in such a case the possibility of overlooking

the presence of pus, in the absence of positive physical symptoms, until pointing occurs. The usual place for this is in one of the middle intercostal spaces near the sternum, where the chest walls are thinnest. Early diagnosis is therefore difficult, which is unfortunate, as, probably, an early evacuation of the fluid would prevent long-continued compression of the lung and add to the chances of its ultimate expansion.

The prognosis in this, as in general empyema, is unfavorable from the reasons mentioned. If the patient does not succumb to the causes producing the abscess, he is liable to do so later from septic infection, tuberculosis or nephritis or amyloid kidney.

Treatment by aspiration, to determine if the fluid is purulent and if so to allow free drainage, is advocated. It is doubtful if it is of advantage to wash out the cavity. Loomis strongly advises against it. Of course, the general treatment should be positively tonic and supporting.

IS THIS LEPROSY?

J. G. McDougal, M. D., New Lexington.

I am glad that I am able to present these two very interesting cases for your examination, for the unusual circumstances under which they have developed render it important that a correct diagnosis be made, and to that end only do I direct my present inquiry, and solicit your every aid.

Hannah M. Garey first came under my observation in December of last year, when she was examined by the New Lexington Pension Board. Doctors P. A. Gordon and C. W. Clemson participated in the examination. She had applied for pension as a dependent child of Geo. W. Garey, a deceased soldier of the 187th Regiment, Ohio Infantry, and at that time she presented the following manifestations of a disease we diagnosed as anesthetic leprosy: The left hand and lower forearm were swollen and rather firmly thickened, the hand and wrist being about twice the normal size. The distal phalanges were all lost, except from the little finger and thumb, and the stumps were all healed. The thumb-nail was deformed and discolored. The hand was being amputated at the radiocarpal articulation by a narrow, encircling ulcerative process, and the work was so near completion that only the ulnar vessels and some of the tendons remained.

Both surfaces were covered by granulations, were bathed with extremely foul-smelling pus, and were yet held in close apposition, except at the bordering skin,

where some retraction had taken place in the healing process which had begun.

The right hand and fingers were somewhat swollen and clubbed, and all the distal phalanges, except those of the little finger and thumb, were lost. The wrist-joint was somewhat deformed because of an unnatural prominence of the head of the ulna on the dorsal side. Both feet were swollen and thickened, and this condition also involved, to some extent, the legs, being more marked in the left. From the left foot the first and second toes were entirely lost, the third toe was off at the proximal phalangeal joint, and the fifth toe all lost. On the plantar surface of stump of great toe was a thick, dark crust covering an unhealed ulcer. In the middle of left sole was an ulcer, the size of a silver half-dollar, which reached deep into the foot, and from which there came a very offensive discharge. From the right foot the great toe was lost, the second and third were off at middle of proximal phalanx, and the fourth was pointed upward so that it was considerably out of line with the others. The little toe was not affected, except that it was involved in the general thickening of the foot. All the affected members were more or less anesthetic, the thermal anesthesia being especially marked.

There was a blister, the size of a silver quarter, on the back of right arm just above the olecranon. The end of the tongue had been destroyed by ulcerations that had healed, the left side of lower lip and both wings of nose had suffered loss from the same cause and were consequently deformed, and the lower jaw had likewise suffered loss of bone, teeth, and gum. Her eyes looked weak and blinking, and her vision was poor.

She is eighteen years of age, and this malady began to manifest itself, so her mother states, by abscess formations in her legs when she was about fifteen months old. In two or three years the toes began to ulcerate and come

off, and then the hands became involved. The flesh ulcerated from the fingers, leaving the blackened, dry bones exposed, and these she persistently drummed on the tables and chairs until her mother cut them off with shears.

She menstruated, though irregularly, after she was fourteen years of age until about one year ago, when menses ceased.

January 18th of this year I saw her again in company with Dr. McTeague. At that time she was sweating freely, though the house was cold, and her pulse was accelerated. She complained of pain in neck and left leg, from which she had been suffering much. Her mother said she had lately fallen several times, limp and motionless, and that she had been having some sort of choking spells. The hand was still further separated, so that it hung downward when the arm was raised. On the back of hand was an extensive gangrenous blister, due to the pressure of splints used to hold the hand in position. The epidermis covering the remainder of the hand had been recently shed, and replaced by the formation of new. The blister on elbow had healed, and the skin marking its location was papery and harsh, and completely insentient to touch or pain. The plantar ulcer was healing, and covered by a thick, black, offensive crust.

It was February 15th that I next saw her. At this time there was a large ulcer, with sharply defined edge, on the back of hand, corresponding in size and location to the blister seen on former visit. Since my previous visit there had appeared for the first time in the history of the case—so far as we were able to learn—an eruption on the left side of neck and on the front of left leg. The eruptive spots were not raised, were dark yellowish brown in color on the leg and darker on the neck. They were thickly set, and made with the surrounding skin a dappled appearance, which shows fairly well on the leg in the photograph. Since the appearance of the erup-

tion there have been no choking or fainting spells. The plantar ulcer, after a duration of about five years, was now healed. At this time the negatives were obtained from which the photographs were made, and the hand was removed and sent away for bacteriologic examination.

Her younger sister Hattie is eight years of age, and has been afflicted for about three years. Her feet are clubbed and legs stocky. The great toe of left foot is off at middle of proximal phalanx. There is a dark crust on lower part of stump. The distal phalanx of second toe is lost. The right great toe is like the left. The nail is lost from second toe, and the ulcer which was present on the top of this toe—as you can see in the photograph—is now healed. The little toe has been entirely destroyed and a healthy stump remains. There is some anesthesia of feet and legs. There was a moderately indurated swelling on outer front side of leg just above the ankle, which has almost disappeared.

The hands, you see, are also affected. They are thickened and chubby. The thumb-nails show evidence of disease. The ends of index-fingers are off, and here an apology for nails is offered in the existence of small, dark, horny thickenings on the centers of ends of fingers. On the radial side of wrist the skin is rough, and here are a number of small wart-like elevations. You will notice a number of blisters on the palmar surfaces of her hands. These are accounted for by the fact that she is fond of parching corn in a skillet on the cook-stove, and her touch cannot appreciate a destructive degree of heat, consequently her hands are frequently burned. You have seen that she is unable to appreciate any difference between the feel of a bottle filled with hot and another filled with cold water. Her eyes are red and tearful. Her voice is coarse and croaks, and she has a croupy cough at night.

Both have suffered at times from painful nerves, and when deep abscesses formed, or when amputations began in the bones, they suffered from them. But the ulcerations, though reaching deep into the tissues or even destroying a member, have not been painful.

Hannah walked with little discomfort on the plantar ulcer, and during the later stages of the destructive process that robbed her of her hand she suffered none, and laughed when it was being cut away.

The mother insists that these ulcerations are always the result of some accidental injury. They sometimes heal kindly after a variable duration, and sometimes go on to complete destruction of the part.

These sisters have never been outside the State of Ohio. Both parents and all the grandparents were natives of Ohio, and belonged to healthy, long-lived families. The parents were married in 1866. There are eight children, and all are healthy except Hannah, the fourth born, and Hattie, the last born. The mother is forty-four years old, and healthy. The father was pensioned for sunstroke. He is reported as having died of some brain trouble March 10, 1893. He had an offensive discharge from the nose, and an eruption on upper lip and end of nose. This trouble developed shortly after marriage, and was never recovered from. Physicians who had treated him for it called it catarrh and eczema. The 187th Regiment Ohio Infantry, of which he was a member, was stationed, during the few months it was in service, at Nashville, Tenn., and at Dalton, Kingston and Macon, Georgia.

This is about all of practical importance I know concerning these unfortunates. Then let us see "where we are at," and whether or not the probabilities are that a mistake has been made in attributing lepra as the cause of all these manifestations.

The most comprehensive discussion on the subject of leprosy I have found, is given by Prince A. Morrow in

his system of Genito-Urinary Diseases, Syphilology and Dermatology. It contains the apparent truth of all I have been able to read on this subject.

For the purpose of comparison permit me to recite here the most prominent and distinguishing symptoms of the anesthetic form of leprosy as given by him: The phenomena are essentially those of multiple neuritis, consisting principally of disorders of sensation and nutrition. The first cutaneous manifestations of nerve leprosy are usually in the form of bullæ or erythematous spots. They may not appear, however, for years later, and they may even fail altogether. Analgesia and thermo-anesthesia may be present with or without impairment of the tactile sense. Most of the cutaneous lesions encountered in nerve leprosy, before the mutilating stage sets in, are due to the blunted sensibility. The deadened nerves give no warning through the perception of pain of the inroads of heat, cold, or other external source of injury. A patient often receives severe injury, as a scald or burn, unconsciously, or a pin may be thrust into the flesh without causing pain. Sensibility to puncture, however, is variable, not only in different parts of the body but in contiguous spots; the same is true of sensitiveness to temperature. There are frequent phenomena of disassociation. Some have no perception of cold, but feel heat, and *vice versa.* There is also slowness in the transmission of sensation. Although the most frequent sites of the spots are the legs about the ankles, they may be found on the backs of the arms and shoulders, the elbows, the back, the abdomen, the nates and the face; they are rarely seen on the palms and soles, and never on the scalp. Another form of eruptive lesion is the pemphigoid. The blebs are always located more particularly on the hands and feet, and on the posterior surface of the elbows and the anterior surface of the knees. Many years may pass, and the patient,

with the exception of an occasional innocuous eruption or neuralgic pain, may have no disorder of sufficient importance to awaken his suspicions as to the exceeding gravity of the disease with which he is afflicted. Pemphigus blebs locate on the phalangeal articulations, and ulcerate, uncovering the deeper tissues, whose consecutive disease leads to the elimination of the bone and to extensive mutilations.

One of the most characteristic lesions is the so-called plantar ulcer, which is especially liable to occur in patients who habitually go barefoot. The bones of the fingers and toes may be lost without ulceration by a process of osseous absorption affecting one phalanx after another, or the phalanges may become the seat of gangrene, which extends until a mark of demarcation is found and the member is spontaneously amputated. The repartive process is usually prompt and complete, the stump healing perfectly; when the loss of the phalanges is only partial, the stumps may stand out at every conceivable angle, and often in the most distorted positions.

Now, by the light of this symptomatology — the most prominent landmarks given on the subject — let us look at these cases. Even though they have not true leprosy, they suffer some disease so nearly like it in all its apparel of symptoms as to afford me ample apology for choosing the inquiry I did as the subject of my paper. I certainly have never seen a single case of typhoid fever that corresponded more closely in its symptomatology to the classical description of that disease, than do these cases to the descriptions I read of anesthetic leprosy.

It would seem superfluous in this connection to consider eruptive diseases of the erythematous type, and the various pigmentary affections of the skin which may simulate the earlier stages of leprosy, but in which mutilations, sensory disorders or marked nutritional changes do not occur ; and so would it seem superfluo

to exclude by differential diagnosis those ulcerative or mutilating diseases whose evolution is unattended by dysesthesia or other disturbances of sensation; nor yet would I feel justified in occupying time in excluding diseases of the nervous system attended with disturbances of sensation, but which are not accompanied by mutilations. Such diseases may furnish one or more symptoms analogous to one or more of the symptoms encountered in the evolution of leprosy, but it is far more difficult to find points of resemblance between them and the disease here manifested, than points of difference.

Raynaud's disease, or symmetrical gangrene, is, we think, excluded by the fact that anesthesia is limited to the ischemic or cyanotic spots about to become gangrenous, and the gangrene is usually limited to a small area of the pulps of the fingers, or fingers and toes; extensive mutilations do not occur, and a peculiar characteristic of Raynaud's disease is the symmetrical distribution of the local symptoms, whether situated upon the trunk or extremities.

Morvan's disease, or syringomyelia (identical), may bear a most deceptive resemblance to nerve leprosy that has developed only in the upper extremities. But syringomyelia may be excluded in these cases by the single fact that it never affects the lower extremities.

I received a copy of the report of the bacteriologic examination of a portion of the amputated hand, which I will read:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL,
MARINE HOSPITAL SERVICE,
WASHINGTON, D. C., March 28th, 1895.

To the Supervising Surgeon-General, U. S. Marine-Hospital Service.

SIR: I have the honor to make the following report on a specimen from a supposed case of leprosy, submitted

for examination by Dr. C. O. Probst, Secretary of the Ohio State Board of Health.

The specimen presented for examination is a portion of the left hand, including the little and ring fingers. The entire member is thickened to about twice its natural size.

On the dorsum of the hand is an extensive superficial ulcer with sharply defined and irregular margin. At the wrist the ulceration has extended deeply through the tissues, amputating the hand at this point. A similar process seems to have affected the tip of the ring finger.

Sections were made and studied from several different places. Four were taken from the edge of the ulcer, two from its center, and one through the skin and thickened subcutaneous tissue, including the nerve going to the little finger.

All the sections disclosed a general hypertrophy of the parts and a large overgrowth of connective tissue. Some of the specimens from the edge of the ulcer showed the histology of the specific granulomata. A thickening of the blood-vessel walls was noticed in the subcutaneous tissue.

All the sections were stained for lepra bacilli, with negative results. Those sections containing giant cells were also stained for tubercle bacilli. None were found.

The disease, therefore, in my opinion is neither leprosy nor tuberculosis, which, by exclusion, throws some weight upon the suspicion of syphilis.

Very respectfully,

(Signed) M. J. ROSENAU,

Passed Assistant Surgeon, M. H. S.

Respectfully forwarded to the Supervising Surgeon-General.

(Signed) J. J. KINYOUN,

(Copy) *P. A. Surgeon, M. H. S.*

As granulomata occur in the new tissue growths of leprosy and also in tuberculosis, as well as in syphilis, we do not understand the report to state the specific granulomata to be pathognomonic of syphilis.

Because no lepra or tubercle bacilli were found he concludes the disease is neither leprosy nor tuberculosis, and therefore must be syphilis.

Relative to this I again quote Morrow (*New York Medical Journal*, July 27th, 1889), who says: "The bacillus is not found in the chronic sores or necrosed tissues and bones of the anesthetic leper. Numerous and repeated examinations of sections of an amputated finger showed no bacilli." The same author in his text-book published in 1894 — only last year — states with his first sentence on the diagnosis of the anesthetic form of leprosy: "While the identification of the lepra bacillus in the tissues is rarely practicable in nerve leprosy, yet the invariable presence of anesthesia in established cases constitutes a diagnostic element of almost pathognomonic value." And similar statements are made by other authors. Did not, therefore, our esteemed bacteriologist go beyond the pale of scientific knowledge in expressing this opinion? and into the realm of speculation when he concluded it was therefore syphilis?

I venture that we have in these cases such a history and combination of symptoms as have never been approached in any case of syphilis any of you have ever seen in practice, or have ever read in a report. It is true the father had a disease of the nose which, so far as the description we get of it goes, might have been syphilis, lupus, or some other disease. But as the first symptom of leprosy is so often an affection of the nose, we think we are justified, in the light of these subsequent developments, in our impression that it was of leprous character; and that somebody, somewhere

and at some time, probably in the sunny South during the war, somehow communicated to him this leprous malady, and that he is the source from which came this wreckage. Admitting that syphilis might show itself by such unprecedented manifestations in a single case, it multiplies the improbabilities a hundredfold that two such unusual cases should occur together and be alike — for considering the difference in duration they are as nearly alike as two cases of any disease usually are. If this be syphilis, is it inherited or acquired? If inherited, how did the other children escape it? There are three children older than Hannah, and three between Hannah and Hattie who are healthy, evidently free from any taint, as is also the mother. If acquired, again I ask, why should all but two escape? for syphilis is many times more contagious than leprosy. The mother, more endangered than the rest, would almost certainly have contracted it.

It must be admitted that there is much to be said in favor of the view that these cases are actually lepra. We have the spontaneous amputations in both the upper and lower extremities, the plantar ulcer, the dysesthesia, the pemphigoid eruption on back of elbow with its resultant anesthetic scar; the thick, black, hard offensive crusts that form on the ulcerous sores, the distorted direction of the toes, the ulcerations of the nose and mouth, the weak eyes and peculiar voice, and the eruptive colorations. It is the exception and not the rule that so many evidences of the disease are found. Moses of old would have dealt with them as lepers on the discovery of far fewer and less characteristic symptoms than these, and without his camp would their habitation have been.

If I have wearied you with a paper of too great length, I have done so because impressed with the practical importance of the subject. For there is no doubt

but that leprosy is on the increase, not only in other countries, but also in our own. If what I have shown you is leprosy, let us do what we can to set aside all ignorant fear of the malady. In the face of a disease which has for ages been accounted one of the most dreadful of plagues, it is not surprising that the public should be struck with panic. On the other hand, let us profit by the experience of the past and urge the adoption of measures that will be certain to prevent its spread. If what you have here seen is not leprosy, let us free these people from the odium of such suspicion. If it is syphilis, let us cure it. And if neither, let us find out if possible what the disease is that has so wrecked the life of one, and so much threatens another with the same fate, and in which decomposition, by such a frightful anticipation, has wrought its work without waiting for the grave.

LEPROSY.

A. W. Hitt, M. D., Louisville, Ky.

We are indebted to the Bible for the oldest record of leprosy. What we now recognize as distinct and separate diseases have been described by ancient writers under the term of "leprosy." The Bible mentions a person as "a leper, white as snow"; this case would not be classified to-day as a case of leprosy, but as leucoderma. On the other hand the Bible gives a very good description of anesthetic or nerve leprosy, in the twelfth chapter of Leviticus.

Many prominent men have died with this loathsome disease. The Talmud says: "The Lord smote Pharaoh, king of Egypt, with leprosy. The disease was exceedingly grievous, and the king suffered inexpressible agony." In a conversation with an intelligent Egyptian who was well versed in the history of his country, I was told that Rameses IV. was the king referred to.

It was said that Moses had leprosy, and Manetho states that 90,000 leper Jews went out of Egypt with him. Josephus discredits the idea that Moses was thus afflicted.

I believe that Job at one time had leprosy. He speaks of scraping himself with a "potsherd;" and says of his suffering, "When I lie down I say, 'When shall I arise and the night be gone?'" and again he said, "I am full of tossing to and fro till the dawning of the day, and my flesh is clothed with worms and clouds of dust. My

skin is broken and become loathsome." And of his friends he says, "They abhor me and flee from me, and spare not to spit in my face."

King Uzziah, and Naaman, the Syrian captain, also had this loathsome disease. Robert the Bruce, king of Scotland, died of leprosy in 1392.

I mention the above cases in order to show that it is not a disease limited to the poorer classes only. The rich suffer from it as well as the poor.

The ancients regarded Egypt and the valley of the Nile as the home of leprosy.

Isadore of Seville, A. D. 582, speaks of leprosy being in Spain. During the reign of Louis VIII., 1226 A. D., there were 2,000 leper asylums in France, while the number of asylums in all Europe was estimated to be 19,000.

Twenty years before Columbus discovered America, there were 112 leper asylums in England.

Macnamara says a leper asylum was established in Canterbury, England, A. D. 1096. Segregation has almost driven it out of England.

Sir J. Y. Simpson gives an interesting account of how lepers were banished from London during the reign of Edward III. The leper was looked upon as a dead man, and the Church performed the solemn ceremonials of the dead over him on the day on which he was separated from his fellow creatures. He was from that time dead to law and legally buried, though still alive and breathing. The priest first went to the house and conducted a part of the ceremony. The leper was sprinkled with holy water, and was then led to the church, where he was clothed in a funeral pall, and while placed before the altar between two trestles, the Libera was sung and the mass for the dead was celebrated over him. He was then given a special dress, and a pair of clappers so that he could warn the people not to come near him.

This is quite a contrast with what I saw daily in India, men sitting by lepers, eating with them, and dipping up water to drink within a few feet of where lepers stood washing themselves and their dirty loin-clothes. A barber called at our house, and after cutting my friend's hair asked me if I wanted to be shaved. I told him "No." He then asked for medicine, and when I examined him I found that he had leprosy.

GEOGRAPHICAL DISTRIBUTION OF LEPROSY.

During my travels in various parts of the world, I have found leprosy in most every place I have visited. I can safely say that no part of the world has escaped this dreadful scourge, save a few of the islands in the ocean. Even Iceland was included in the list as far back as any of our writers can remember. In 1652 a leper asylum was established in that country.

India, China, the Sandwich Islands and the different districts in Africa suffer most from it. Some people believe that there are 250,000 lepers in India, while Macnamara, who is one of the leading authorities on leprosy in India, says there are 128,089 in British India. There were 6,614 in the district in which I lived.

China is said to have almost as many lepers as India, but owing to so much of the country being closed to foreigners, it is next to impossible to get or give any correct information.

Dr. Hillebrand, who has been practicing in the Sandwich Islands since 1851, says that there were doubtful cases as far back as 1848, but the first well-authenticated case was reported in 1859. It was introduced by the Chinese, and as there was no word for it in the Kanaka, the natives call it "mia-pake," or a Chinese disease. There is now one leper to every 30 healthy natives in these islands. The leper asylum on Molakai in 1890 had 1,159 lepers in it. There are now about 1,500 in this asylum.

Our own fair country has a good sprinkling of it, there being 522 cases now in America. Only a few weeks since two lepers were discovered in the country above Cincinnati, Ohio.

For quite a long time two types of leprosy had been recognized, the tubercular and the nerve type (generally known as the anesthetic form), which, when combined, form a third type known as the mixed type of leprosy. The same bacillus causes both forms.

If the bacillus finds a home and can develop in the corium, we will have as a result tubercular leprosy; but if the bacilli do not attack the corium, and reach the nerves of the extremities and face, we find nerve or anesthetic leprosy. In other words, I believe that the type of the disease is determined by the channel through which the bacilli enter the body. Should it be deposited on the skin, especially in a weak place, and remain undisturbed, tubercular leprosy would follow.

SYMPTOMS OF NERVE OR ANESTHETIC LEPROSY.

Generally the patient has several feverish attacks and the whole constitution seems to be disturbed. This is not always the case, but generally speaking, among the lower, ill-fed classes this will hold good. The first symptom which attracts the attention of the patient is a tingling or burning sensation in patches, on the different parts of the body. The backs of the hands and the forearms are generally the parts which are thus attacked.

Lancinating pains along the course of the nerves are next noticed, and the color of the integument changes. In some cases it becomes darker, in others the skin pigment is diminished and the part becomes lighter than the surrounding skin.

Pemphigoid eruptions are commonly noticed. An erythematous rash appears over the affected parts

The pimples vary in size from that of a lentil to a pea. These patches gradually fade, and the epidermis shows a tendency to desquamate after the drying up of the eruption. These spots spread peripherally, and begin to fade first in the center. The complete cessation of perspiration from the surface of these spots is very important as a diagnostic point. Pilocarpine will not affect these spots. In some cases these spots are delayed, and do not appear until after the disease has been in the system for ten years. The destruction of the nerves disturbs nutrition and the sense of feeling. Soon the most distressing part of the disease shows itself, and the extremities and face are mutilated. The nose sinks in, and leaves a ghastly-looking patient whose face you can never forget. The fingers and toes become crooked and ankylosed. The phalanges either drop off or become absorbed and disappear in this way. The hair drops out in tubercular leprosy, while it becomes white in the anesthetic spots of nerve leprosy and does not always fall.

There is great pain about the eyes, nose, cheeks, mouth and limbs. After months or years of suffering the pain ceases and anesthesia supervenes. An eye can be cut into at this stage without hurting the patient. The patient's health fails after years of suffering, and he becomes anemic and visceral complications arise. Amyloid degeneration of the kidneys and the liver, with chronic diarrhea, finally put an end to his suffering and miserable existence.

SYMPTOMS OF TUBERCULAR LEPROSY.

As in the anesthetic form, we find fever and a general breaking down of the constitution in the first stages of tubercular leprosy. When the disease is well advanced, the tubercular or nodular masses on the face, with the greasy, shining appearance, cause the patient to look simply frightful. This is the leonine appearance (leon-

tiasis), as commonly noted by both ancient and modern writers.

If you will pardon me for mentioning elephantiasis here, I will say it seems strange that these two powerful and destructive diseases should be in appearance so much like the two most powerful and destructive animals of the country in which they prevail, that the name "leontiasis" from the resemblance to the lion, and "elephantiasis" from the resemblance to the elephant, should be given them. Leprosy, like the king of beasts (the lion), is the king of diseases, and is the most destructive disease known so far as mutilation is concerned. And as the immensity of the elephant (or if you will pardon me for using the expression), this great exaggeration of animal life, impresses you on first seeing it, so the immensity or apparent exaggeration of the disease impresses one when they first see a well-developed case of elephantiasis. Another point, which to me is very interesting: Only a short distance from our place is a town (Ruttenpore) which is noted for two things: first, the great number of cases of elephantiasis; and, second, the large "tulahs," or artificial ponds. Ruttenpore was for centuries the capital of this district, and the native kings or rajahs had great herds of elephants there. The elephants were washed and bathed in these tanks daily, and the natives now say that every person who bathes in one of these tanks is sure to have elephantiasis, while in the neighboring tanks, where no elephants were bathed, the water is pure. If you ask a native some distance from this place if he has ever visited Ruttenpore, he will, as a rule, reply, "Yes," and add, "Ruttenpore admi hathi pau ka mawfik" ("Ruttenpore men have feet or legs like the elephant"). This is the native's belief about the matter, and I leave you to judge as to whether there is any connection.

Thin says: "When the parasite has established itself in the skin, the first effect (before there are any changes observable to the eye) is to set free a poison, which produces more or less marked results in different individuals, causing the so-called prodromata, or premonitory symptoms of leprosy. After a time the multiplication of the parasite causes a vaso-motor paralysis of the parts in which it grows, producing the exanthem of tubercular leprosy.

"The further development of the bacillus leads to direct changes in the corium itself, causing swelling, thickening, infiltration and discoloration, which vary according to the extent and rapidity with which it grows. This forms the so-called tubercular stage. The breaking down of connective tissue and the destruction of blood-vessels, produced by this excessive growth of bacilli, lead to ulceration—the ulcerative stage of tubercular leprosy. Finally comes a time when, in most cases, the bacillus leads to leprous deposits in the liver and spleen, and the patient becomes exhausted by the constant discharge from the ulcers and by visceral complications, to which he eventually succumbs—unless, in the meanwhile, he has been suffocated by the leprous growth in the larynx, or has died of some acute intercurrent malady."

PATHOLOGY AND BACTERIOLOGY.

The bacilli lepræ have been found in the cells of almost all the tissues of the body in persons affected with leprosy, but it is in the cells of the diseased nerves and skin that the bacillus will be discovered in the greatest abundance.

In the early stages of nerve leprosy the bacilli first grow within the cells forming the sheath of one or more of the nerves, most frequently the ulnar nerve.

The lepræ bacillus resembles that of tubercle; in length it is about one-half to three-fourths the diameter of a

human blood-corpuscle. The lepræ bacillus multiplies by fission. As it has not been found free in the blood, it is doubtful whether it will live outside the cell wall.

Danielssen and Boeck give a good account of the changes visible to the naked eye. The epidermis is found normal in a section of tubercle which has not softened, and from the slightly firm corium a little viscid fluid can be expressed. The cut surface is granular, yellowish white, and a substance having this color can be squeezed out of it. The subcutaneous tissue is infiltrated and thick, and a lardaceous mass, which is often gelatinous, adheres to the corium. The skin becomes gradually thickened, the tubercle very rarely extending to the subcutaneous tissue, which does not soften with the rest of the tubercle. The vessels and nerves in the diseased tissue become thickened, but resume their normal condition on passing into healthy tissue.

About the only difference of consequence, pathologically, between the types of disease, is that the nerves are affected in nerve leprosy and the skin in tubercular leprosy.

DIET.

Almost every article of diet has been accused of causing leprosy. Mr. Jonathan Hutchinson believes that fish will cause it. Lepræ bacilli have never been found in fish, either fresh or dried. I, therefore, can not believe that fish alone will produce leprosy. But I will say I believe that a fish diet is often a very important factor in the causation of leprosy, by preparing the soil for the seed.

We know that there are many people in the United States who cannot eat shell-fish or strawberries on account of the unpleasant skin eruption which they produce. We know that when the skin is diseased and broken, that the lepræ bacillus will find it much easier

to enter the human economy than if it were healthy and unbroken. It would be just as correct to say that a fish diet alone would cause it. Men who have itch are more likely to have leprosy than healthy men are, simply because the skin is broken.

In this connection it might be well to mention the fact that while a fish diet will have little effect on leprosy, a mixed diet of fish and milk will cause the disease to increase and the ulcers to enlarge rapidly.

I believe that leprosy is contagious as syphilis is contagious, that is, by inoculation in some way or other. The lepræ bacilli must be transferred from the infected to the healthy person. This I believe can be done in several ways.

VACCINATION AND ITS RELATION TO LEPROSY.

We will speak first of a few cases in which the disease has been produced by inoculation.

1. A European Sister of Mercy, who was sent to Guiana, was infected by being pricked with the needle with which she was sewing lepers' clothes.

2. A European child free from taint, while playing with a native child who was a leper, saw him stick the blade of a penknife into the anesthetic part of the leg without experiencing pain. The European child took the knife from the native and tried to experiment on himself, but of course suffered from it. He afterwards became infected and died of leprosy.

3. Kenu, a condemned murderer in the Sandwich Islands, was given his choice by the Queen, of being inoculated with leper lymph or being hung on a certain day. He consented to be inoculated, and this was done by Dr. Arning. Within two years he was a confirmed leper. He died with leprosy in about six years.

I believe it is an accepted fact that leprosy can be inoculated, and that in this way it has increased and

will continue to increase at a fearful rate until arm-to-arm vaccination is abolished.

General arm-to-arm vaccination has been practiced in the Sandwich Islands for years. Within the last few years leprosy has made a fearful advance there, from the time when no one had leprosy there (1858) to the present day, when we find one-thirtieth and some say one-tenth of the population infected with it.

Two years after a general vaccination took place there, in a district which had been remarkably free from leprosy from fifty to sixty cases were found. Cook estimated that the population of these islands one hundred years ago was about 400,000; to-day there are less than 18,000, 1,500 of whom are now in one leper asylum.

The vaccinators in India are ignorant men, and unable to diagnose a case of leprosy or skin-disease of any kind, if they should see it. They never examine the people, and vaccinate all they can corner or catch up. Lepers are often included in the list, and lymph is taken from their arms and healthy people vaccinated with it, as the following case will show:

A leper named Munorita, aged thirty-four years, residence Koth, near Ranikhet, has had leprosy twelve years. Was vaccinated since he had leprosy. He was not examined when he was vaccinated. Others were vaccinated with the same knife before it was cleaned. Later on the lymph was taken from his arm and others were vaccinated with it.

It is useless to take up more time with this sad story. I claim that leprosy is being spread by the lancet, and can confirm what I say. Gentlemen, it is time for the physicians of these countries to call a halt before this curse reaches around the world and knocks at our own doors. If the profession will not take up the fight for right, who remains to do so that can?

The natives of India object to having their children vaccinated for two reasons: First, because they have seen so many of them die after the operation, while others were wrecked for life and would have been far better off in their graves. About 6,000,000 people were vaccinated in India last year, and God alone knows how many of these poor creatures will have leprosy or some other trouble later on.

There is another reason why they object to it, and that is because they say a child is to be born who will be their king, and who will free them from the hands of the English. The blood of this child will be as white as snow. The English in some way discovered their secret, they say, and commenced dipping into the arms of all the children to find the white-blooded child. If it is found, it will be put to death.

I believe vaccination is a blessing when carried on right, but it is surely a curse as now practiced in India and some other countries.

DURATION.

The average life of a man suffering with tubercular leprosy is about nine and one-half years, while with anesthetic leprosy they live about eighteen and one-half years after contracting the disease.

TREATMENT.

It would be impossible for me at this time to speak of all the drugs which have been used in the treatment of leprosy. Chaulmoogra and Gurjun oils have been used by most every one who has had anything to do with leprosy, but so far these oils have failed to cure. Arsenic is considered by some to be good. Danielssen used iodide of potassium for over forty years in the treatment of leprosy, with a marked degree of success.

There are no two cases which we can treat alike. Ten per cent. solution of pyrogallic acid painted over

the anesthetic spot often does good, and the anesthesia disappears. I pay very little attention to the ulcers other than to keep them clean, as I believe to heal them by local application alone will do more harm than good. As in other diseases of this character an alterative is indicated. As an alterative I generally use the elixir iodo-bromide of calcium compound (Tilden's), as the calcium salt is much better tolerated by the stomach and prompter in its action.

If the ulcers are slow about healing I generally pack them with equal parts of acetanelid and sulphate of quinine. Ichthyol has been used by some, but after trying the various remedies I think the treatment outlined as above will give better satisfaction than any other. We can heal ulcers, stop the most distressing symptom of the disease, mutilation, and place the patient in a fairly good condition.

DISCUSSION.

DR. HAYS:

I think the paper of Dr. McDougal is a most excellent one. It treats of a subject of very great interest to the people in the section of the State in which we live. The doctor deserves our thanks for his efforts, which were successful, in getting the cases before this Society. I have seen the cases before, and believe them to be genuine cases of leprosy in the anesthetic form. Gentlemen, I pity them from the bottom of my heart, because for them there is no hope in this world. The dark, mysterious monster, of whose origin but little is known, has seized upon them, and is slowly, surely, relentlessly devouring their unfortunate lives. For these poor wretches, these victims of the most dreadful disease with which this world is afflicted, there is no hope. They either die after a few months, after the disease has eaten into their vitals, or they live for a few years watching the members of their bodies destroyed piece by piece. Shunned, despised by all, revolting to the sight and smell, their very sight avoided, their name a

reproach, the lot of the leper is the most awful that can be conceived. Dead to the world yet of the world, denied association with any but lepers, the leper might doubt the presence of a merciful Providence or the existence of Christianity or anything noble and pure. In past years no doubt they did, because they were cut off from their fellows more than they are now; driven from their homes; not allowed to visit places of public resort; compelled to live in tombs, hedges, fields and woods; denied the privilege of entering God's house — surely the lot of the leper in years past was infinitely worse than now.

In all countries and in all ages the mass of mankind has always believed in the contagiousness of leprosy. And even now, when criticized by scientific investigation, the only way we can explain the facts is by contagion. We do not know how this contagion takes place, or how this contagion is carried, or how inoculation takes place. We do not know why one person may contract the disease from what might seem a slight exposure, and others may live for long years and never be affected. But we know, gentlemen, where we find a leper we may expect to find more, unless some effort is taken to prevent its spread. The most notable evidence we have in this respect is the report of the Indian Commission, 1892, of investigations made in 1891, in which it states that leprosy is contagious, and is not tuberculosis or syphilis. There is abundant proof that the plan of segregation, if vigorously enforced, will cause a gradual decrease of leprosy in any country. There is abundant proof of this, we think, as this plan, though not enforced with absolute vigor, has caused a gradual decrease of lepers in Norway, New Brunswick and the Hawaiian Islands. In Norway it was decreased from 2,683 to 1,522. In New Brunswick it was changed from 36 to 35. The rapid increase of this disease in North Carolina amply illustrates the tendency when let alone. There are perhaps more lepers in the State of Louisiana than in all the other States together, except perhaps California and New York. It has been recently reported that there are 35 or 40 in New Orleans. In 1887 there were 42 lepers found in the city of New Orleans, with

perhaps 15 or 20 more traced in the country, and perhaps more undiscovered.

Believing as we do, gentlemen, that this is leprosy, would it not be wise to take some means to protect our own homes from this foul, loathsome disease? I do not want to appear unjust or unkind in my criticism of these cases. Far be such a thought from me. As I said, I pity from the bottom of my heart any poor, unfortunate creature similarly afflicted. But I would plead, gentlemen, honestly, fearlessly and boldly, that the great State of Ohio take the proper measures to protect us from a disease so foul as this.

DR. HITT, Louisville, Ky.:

I would like to read a letter from Dr. J. B. Keber, the dermatologist, of St. Louis, in regard to these cases:

Dr. A. W. Hitt, Columbus, Ohio.

DEAR DOCTOR: Your letter of the 13th inst. received. I certainly think it a very difficult matter to find the lepræ bacillus in cases of the anesthetic type, and am thoroughly in accord with Morrow when he says that "the identification of the lepræ bacillus in the lesions is rarely practicable in nerve leprosy." I was only recently confirmed in this opinion by failing to find the bacillus in a perfectly typical case. The failure to discover it does not weaken the diagnosis, however, if the clinical symptoms are well expressed—in fact the bacteriological examination in such a case can only confirm the clinical diagnosis—failure to find the bacillus does not make it doubtful. In the tubercular form the bacteriological examination and the clinical diagnosis are the complements of each other. The bacilli are always present in large numbers in the tubercles. I have always found them easily. They can readily be demonstrated. Consequently the clinical diagnosis can always be and should be substantiated by the discovery of the bacillus. I should be inclined to doubt the accuracy of the diagnosis of tubercular leprosy if the diagnosis could not be confirmed by the discovery of the bacillus, but I personally would not feel it necessary to modify my diagnosis of anesthetic leprosy one iota if a bacteriological investigation failed to demonstrate the characteristic bacteria.

That is the rule and not the exception. The clinical symptoms are amply sufficient for accurate diagnosis.

Yours truly,

May 14, 1895. J. B. KEBER.

Dr. Ohmann-Dumesnil, of St. Louis, in a postscript adds this: "P. S.—I desire to add that in making examinations for bacilli, it is no proof that the case is not leprosy because no bacilli are found in cases of the anesthetic form. Of course, it is rather easy to find them in tubercular leprosy, but the most expert microscopists fail to do so in the anesthetic form."

So far as the cases are concerned I think nothing more is necessary. I fully believe these cases are anesthetic leprosy.

SYSTEMIC DISSEMINATION OF TUBERCULOSIS FROM A PATCH OF LUPUS VULGARIS.

ROBERT PETER, M. D., TOLEDO.

Mr. Jacob W., aged 58 years, always enjoyed seemingly good health excepting that he had a lupus patch just below his left ear. This lupus he had for about ten years. He first came into my hands after it had existed about three years. It began over a very small area below the ear, and did not make rapid progress for the first five or six years; but from that time on it commenced to gradually spread until it involved more extensive area. In the last two or three years of its existence, it spread so as to destroy the ear lobule and the tissue in front of the ear. Although the process was rather gradual and slow, it became so extensive as to break through the junction of the aural cartilage, and finally penetrated the anterior temporal vein, so that the patient had to send for the writer to control hemorrhage. Even though everything in the category of remedial measures—from lunar caustic to mercurial plaster—had been repeatedly and faithfully tried without avail, the patient begged in his despair that one more effort should be made of something that might yet have remained untried, to cure his condition if possible.

Just about this time the writer had noticed in a journal that Dr. Carl Von Ruck, of Asheville, N. C., had been testing the efficacy of Koch's tuberculin in lupus cases, and we decided to write to him making inquiry. After

describing to him the character and extent of our case, Von Ruck advised against its use, as in his experience he found that tuberculin proved only of benefit in very mild cases; but in cases of extensive character, he found that it intensified the process only the more. It was therefore decided not to employ it in this case. However, the bleeding was fully controlled and the patient continued for one year without further marked change, when he was taken down with what was diagnosticated as typhoid fever. The diagnosis was substantiated by the facts that his daughter had typhoid fever some time previous; that while he had it, his own son was likewise taken down with it; and his nearest neighbor at the same time died from it. He went through this attack of fever very well, but never fully convalesced as he should have done.

This condition soon changed into one of varying appetite, at times a slight hectic fever, colliquative sweats, and of emaciation. Presently his right knee was noticed to swell. A condition of synovitis of the joint developed, and a substantial enlargement of the condyles of the femur took place. The limb was immobilized by means of plaster-of-Paris cast, and placed into a position of elevation. It did not proceed to suppuration; but the swelling of the soft parts went down, the synovitis entirely disappeared, the condyles remaining the same—their enlargement did not recede. The patient continued in this way without much further improvement for a number of weeks; finally it was observed that over the left renal region a more or less circumscribed prominence had developed, but without any local heat or redness. On thorough investigation it was concluded that pus had formed, most probably around the kidney, and that nephrotomy was necessary to remove pus and the diseased tissue, if any be present. This we did, accordingly, by making Koenig's lumbo-abdominal incision.

We found that the kidney was somewhat enlarged and entirely embedded in pus, but its surface seemingly smooth; there were also found large pus pockets extending deeply down into the pelvis. The pus was all drained out and its pockets all broken up; necrosed tissue removed; entire cavities washed out with sterilized water and well packed with iodoform gauze, and antiseptic dressings and bandage applied. The prognosis of such a case is clear. Although the patient could not possibly recover, we treated his condition just as carefully as good surgery always demands for its own sake. The patient tarried in this way for a few weeks and then died from exhaustion.

Physical examination of the chest did not reveal anything positive. There was no well-marked cough, nor characteristic expectoration. We do not believe that family history bears the important significance that was formerly maintained. In this instance it was apparently negative. The only evidence perhaps of a tubercular proclivity in the family was that a more or less distinct impress of pallor could be noticed on all of his children. However, the case presented the most marked evidences of tuberculosis, as shown by the characteristic appearances of the knee-joint, the so-called cold abscess, besides the presence of lupus vulgaris. There was therefore no doubt of tuberculosis and that the systemic or deep infection was most probably inaugurated during the typhoid fever. General immunity was reduced by this fever process, and in this way made it possible for the tubercular metastasis to materialize.

One very important lesson that this case teaches is, that general tuberculosis *can be* established by dissemination of the local process of a lupus vulgaris. It is still taught by some dermatologists that deep tuberculosis does not follow the superficial form of lupus. Stellwagon makes the unqualified assertion in his brochure

on skin diseases. This case disproves such teaching. Hence tuberculosis of the skin, or so-called lupus vulgaris, may eventually wind up in systemic tuberculosis. Whenever and wherever *bacilli tuberculosis* go, it is hard to tell when and where they will come to a halt. Progress evidently resolves itself into a question of degree and quality of immunity. Thus it happens that the process of tuberculosis assumes in one habitation either a more or less fulminating course, or, in another, a more or less attenuated form. In bones, superficial and glandular structures, the tubercular process is always rather slow, while in the lungs it is always comparatively rapid. Hence the terms of scrofulosis and lupus should be excluded from the nosology of disease and the term of tuberculosis always be applied. Lupus vulgaris should always be designated as tuberculosis of the skin. Little over twelve years ago the intimate nature of lupus was still in doubt. It is no longer a disputed question; and this case also most beautifully illustrates the fact of identity of lupus and deep-seated tuberculosis.

Is it not probable that the lupus patch of Mr. W. was engrafted below his ear by inoculation with a contaminated razor or other tonsorial contact? From our knowledge of tuberculosis, inoculability suggests itself. This contradicts the old teaching that lupus is not contagious. It no doubt is inoculable. This matter awakens the practical interest it bears in relation to the arguments why sanitary observance should be exacted from barbers, in properly *sterilizing* their razors, sponges and all material in their use. As a careful people, we must look to the essentials for safety to our health. Barbers inflict mostly but insignificant wounds; but it must be borne in mind that these are the very ones most favorable to inoculation.

Proper enforcement of tonsorial cleanliness obviously would prevent also many other inoculations, and it is only the proper thing to demand. What a loathsome trouble is sycosis! a most stubborn cutaneous disease; nothing less than a *folliculitis barbæ* inoculated with mycotic parasites which are almost always transmitted by means of an unclean razor. What a dangerous thing is syphilis! in like manner it may be engrafted. There should therefore be a law passed, demanding intelligent enforcement of scientific cleanliness from our tonsorial artists. We believe this is already the case in Germany, and it should be so here.

Furthermore, in conclusion permit me to suggest the inculcation of clearer and better notions of ideas pertaining to infections and their metastases, as they are still very vague in the minds of so many medical men. Metastases have so long been only associated with the ideas of so-called pyemia, that their significance can hardly be realized in connection with other than only purely pyogenic processes. We have clearly shown in this case that we had to deal with metastases from a patch of lupus vulgaris. We have also seen cases of tubercular metastases of the hip-joint follow the primary inoculation in the lungs, and *vice versa*. We have seen cases of tubercular meningitis associated with the same condition in the lungs, where it was difficult to tell the primary infection. And so we have seen a case of diphtheria of the throat followed by a subsequent ulcer of the stomach, from which the patient died. It is high time that we fully remember that metastases are only new localizations *in locis minorium resistentiarum* from an infection already existing somewhere within the system. Remembering this will often render easy the tracing of effects to a single cause, which simplifies matters often very much.

REPORT ON TYPHOID FEVER—Continued.

Eighth Paper.

JOHN ELIOT WOODBRIDGE, M. D., YOUNGSTOWN.

A few days since I overheard a physician say: "There is no physician in the world so learned and possessed of such perfect integrity, as to have been able to convince me by any statement that the uniform results I have seen Dr. Woodbridge secure in the treatment of typhoid fever were possible." When asked by his interlocutor what he would regard as convincing evidence of the truth of the declaration that typhoid fever can be aborted, he answered: "Seeing it done, and after that the charts and reports of cases of other physicians who have treated typhoid fever by Dr. Woodbridge's method, and have thus succeeded in saving the life of every patient and greatly shortening the duration of the disease." His remarks prompted me to amend the report which I had prepared of the cases of typhoid fever which I had treated during the past year, by embodying in it some accounts of the failures and successes of other physicians who have essayed the abortive treatment of the disease, relying on the directions which I have given in papers (written only to prove that the disease can be aborted), on hastily written letters, on instructions given orally, or on bedside consultations. Many of them have shown their enthusiasm over the results of their trials and tests of this method of treatment by sending me clinical charts of their cases, also gratefully acknowledging their indebt-

edness to me for their marvelous success—a most laudable example of true courage and heroism to thus report results (the very possibility of which had been so strenuously denied), and which example, it is to be hoped, may be largely followed.

As the object of this paper is to place the Ohio State Medical Society in a position to reach a just conclusion as to the veracity of the affirmation that *typhoid fever can be aborted*, I shall draw from all these sources. Many of the original clinical charts (copies of which I hand you), and also the letters from which extracts are made, are here for your inspection.

Those of you who were present at the last meeting of this Society, when I read my paper on "Typhoid Fever," will remember that a member arose in his place and said: "Being from Dr. Woodbridge's town and society, I wish to say that we have had several 'fights' on this subject, and we have been watching his cases for several years to see if he could make his pledges good; but so far we have been unable to discover that he has made any failures, or had a death from typhoid fever. And we intend to continue to watch him in the future, and if he have a death, we will report it." The fact that no such publication has been made, may be accepted as conclusive testimony that for thirteen years I have had no death from the disease, and have aborted every case of typhoid fever which has come under my care at a reasonably early stage of the disease.

During the past year I have treated, alone or in consultation, fifty-eight cases of typhoid fever. During the same period, there have been treated by one hundred and seventeen other physicians acting under my advice, by consultation at the bedside, in conversations in which I have given very complete and precise counsels in regard to the guidance of the patient throughout the illness, more than eight hundred cases.

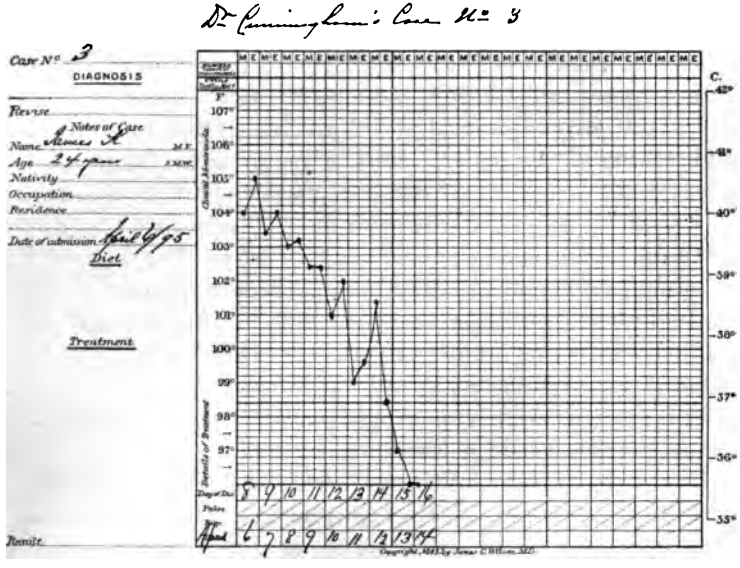
I have seen in consultation, during the past twelve months, two* fatal cases, viz.:

Fatal Case No. 1, Mr. H. C. O., of Sewickley, Pa. This patient had been sick and feeling miserably, and under the supposition that he had la grippe had been taking quinine for several days. Yielding to the inevitable, he finally went to bed and sent for his physician, who found that he had pneumonia. Later he had an alarming hemorrhage of the lungs. No pathognomonic symptoms of typhoid fever were observed until the night of the first of December, during which he had numerous profuse intestinal hemorrhages. I was called the next day and found him in a condition bordering on collapse, bleeding from both the lungs and bowels, and he died before the hemorrhage could be arrested.

The only other fatal case which I have seen in consultation, occurred in the practice of Dr. M. V. Cunningham, whose experience in the Cook County (Ill.) Hospital, and at the Emergency Hospital during the World's Columbian Exposition, had served to render him an unusually accurate diagnostician, and taught him to appreciate the value of antiseptic medication. Conservative to a degree, educated to believe that there was no power in medicine to abort typhoid fever, he had watched my cases with the eye of an unfriendly critic, until, forced by the logic of my repeated successes, he called me in consultation several times, and consequently was able to produce such brilliant results in a number of instances that I had the most implicit confidence in his ability to treat typhoid fever in a perfectly scientific manner.

Case No. 2, James K., aged 24 years (see chart marked "Dr. Cunningham No. 3"). This patient was very sick on the thirtieth of March. On the first of April

*Since this paper was written, a third case, which I saw only once, the twenty-ninth day of the disease, died.



he sent for a physician, who, according to the statements of the family, made a diagnosis of la grippe, and called again the next day. The patient growing worse, Dr. Cunningham (who a few weeks earlier had treated a small niece of the patient through a very severe attack of typhoid fever by the method I had advised, with unusual success, see chart marked "Dr. Cunningham No. —, Ella G.") was called on the sixth of April, and he on the seventh called me in consultation. I found that the patient had been so sick nine days before I saw him as to lead to the obvious conclusion that he had been sick even longer. This conclusion was fully justified by his condition, his temperature having been the previous day 105°; his bowels excessively tender and tympanitic, nervous symptoms exceedingly bad, his tongue tremulous and very dry and brown. He also had persistent hiccough, and was delirious. The next

morning Dr. Cunningham came to my office to say that his patient was so wildly delirious that his father who was nursing him was unable to give him medicine, and could with difficulty keep him in bed, and consequently wished to send him to the hospital, a desire which met my heartiest concurrence, but this was unfortunately abandoned on account of expense. I did not hear from the patient again until the tenth of April, when Dr. Cunningham invited me to see him, remarking in a pleased way: "I would like you to see him once more before he is well, and you must hurry, or you will be too late, for his temperature was 101° this morning, and at the rate it is dropping it will be normal in a day or two." Visiting him about 10 A. M. we found his temperature 100.6°, his tongue moist and less coated, his head clear, his abdomen quite flat, and entirely free from tenderness, tympanitis very slight, nervous symptoms greatly improved, and sleeping naturally. He had taken no antipyretics nor stimulants. His condition having improved so rapidly since my last visit, I told the doctor that I believed his patient would be well in less than ten days, and according to the reports he continued to improve until the following evening, when his symptoms were all better, and his temperature was 99.6°. Up to this time the disease had run the usual course expected under antiseptic treatment, and, save that it had been instituted too late to prevent necrosis and ulceration of Peyer's glands, which must needs have time to heal by granulation, the patient was nearly well. Consequently I was greatly surprised when Dr. Cunningham telephoned me the next day that the patient had had two convulsions during the early morning, was very restless, delirious, and seemed to be suffering great pain, apparently abdominal, as was indicated by the manner in which he rubbed and tugged at this region. Examination revealed a doughy mass, filling

up the abdominal cavity, most solid on the right side. He continued to have convulsions; his mouth and tongue became dry and parched; his temperature became subnormal; he grew more restless; his delirium became more profound, and he died of shock two days after the accident occurred. The autopsy revealed an intussusception, the obvious cause of death by shock to the nervous system, already exhausted by the long and exceedingly severe delirium, and under great strain on account of the septic condition, due to the enormous pyogenic surface; the whole of the small intestine being inflamed, and all of the agminated glands of Peyer, in the more than six feet of intestine examined, being ulcerated. The stomach and intestine above the intussusception were full and distended almost beyond endurance; while below, they were empty and collapsed.

This case presents the strongest possible confirmation of the correctness of my diagnoses — because there is not, amongst all the cases that I have reported as typhoid fever, a single case which offers fewer pathognomonic symptoms of the disease than this one. It positively confirms my declaration that "typhoid fever can be aborted," for severe as it was, and despite the fact that treatment was so long deferred that necrosis of Peyer's glands was unavoidable, it yet pursued the ordinary course toward recovery, and before the unfortunate accident which caused his death, occurred, he was practically cured.

It presents the most convincing and irrefutable evidence of the validity of my assumptions as a whole; and it seems to me that it should overwhelm with shame and confusion the impudent and arrogant critics, who (forgetful of my nineteen years of clinical experience with a method of treatment to which they have not given the slightest attention) presume to say that because the

clinical chart does not present the so-called typical "typhoid fever curve," *ipso facto* it ceases to be a typhoid fever chart.

If any one of the gentlemen are present who in former years have criticized my charts (and in doing so have positively asserted that a chart showing a step-like decline in the temperature, which touches normal in eight or ten days, could not be one of a case of typhoid fever), will now scrutinize well the chart marked "Dr. Cunningham's Case No. 3, James K.," and examine also that book of charts, in it he will find that there are not three charts in which the thermal line departs farther from the so-called typical "typhoid fever curve," than the temperature curve on the chart of this man, whose small intestines presented the most extensive series of ulcerated Peyer's glands that I have ever seen.

Had the physician who was called to attend this man on the first of April made a correct diagnosis, or failing to do so, had he called in consultation a physician who, if unable to make a positive diagnosis, would at least have given the patient the benefit of the doubt and immediately instituted efficient antiseptic treatment, the misfortune of an intussusception might still have befallen the patient, and he might have died, but he would have been spared those days of burning fever, those sleepless nights of wild delirium, the necrosis of Peyer's glands, and their consequent dangers.

I have known all of these years that these were the clinical charts of cases of true typhoid fever; known that some of them were charts of cases of the disease in which necrosis and even ulceration of Peyer's glands had already supervened; and I have also been well aware that there were amongst them the charts of patients who, but for the treatment I had advised, would have been sleeping beneath the sod.

In nearly every medical society before which I have presented dissertations on typhoid fever, certain members have wisely delivered themselves of one or more of the following sage citations, either literally or with very slight rearrangement of words; as, for instance: "We all know that typhoid fever is a specific infection that must run its course of four, five, six, or ten weeks or longer"; or it may be that one will sapiently remark: "If there is one fact in medicine that is well established, it is that the course of the disease in typhoid fever cannot be shortened by a single day." These erudite persons seem to deem these parrot-like assertions as incontrovertible testimony amply sufficient to confute totally and instantaneously the whole of the accumulated evidence of my clinical experience, and, indeed, even quite sufficient to disprove the statements of all the proficient physicians who have corroborated my diagnoses and results. But it should be remembered that unwarrantable assumption is not valid reasoning, and the plausible arguments that have been adduced in confutation of my claims are not more convincing than what have in the past been used to oppose every step in the progress of medicine. A latter-day Sydenham gifted with peculiar perspicacity selected three charts as looking to him very much like the record of the temperature in cases of malarial fever. The fact of the matter is that his extraordinary clearsightedness availed him nothing, for he had, unluckily for himself, chosen the charts of three cases of typhoid fever which had occurred during three epidemics. These patients had been examined and the diagnoses verified by no less than six different physicians at the bedside, and no doubt was expressed at the time as to the character of the disease.

It is hardly conceivable how so grievous a mishap could have befallen the critic, for unfortunately the lines on the chart did not delineate the rise and fall of the tem-

perature of malarial fever — most inexcusable blunder even in the most inexperienced medical man. Arguments thus propounded by notable professors whose reputation for scholarship beyond measure has heretofore been undisputed, have been puerile indeed — unworthy alike of the speaker, his auditors, and the topic under discussion. It is hard to understand how a philosopher, so penetrating, so profound, could be so wilfully blind as not to have observed that at least fifty of these were the clinical charts of typhoid fever patients which had been examined by from two to six different physicians, the diagnoses and results of treatment attested to, and all of these facts written on the face of the original charts, which were signed by physicians whose integrity and expertness as diagnosticians cannot be questioned.

When these charts have been criticized, and when the fact that the temperature has touched normal in seven or eight days has been said to be proof that these patients did not have typhoid fever, I knew that if the opportunity should ever present itself I would be able to demonstrate on the cadaver the truth of my statements. I little expected, however, that I would live to see *a case of aborted typhoid fever in the dead-house.*

But here I present to you a temperature chart, kept at the bedside of the patient by the attending physician, Dr. M. V. Cunningham (Case No. 3, James K.), in which the temperature touched normal on the seventh day of treatment—the thirteenth day of the disease. And here I present to you both dried and moist specimens of the intestine of the same patient, showing the characteristic and extensive ulceration of Peyer's glands. Here is the intussusception which caused the death. The bedside history and the pathological specimens prove conclusively that one case of typhoid fever was aborted. "*Ab uno disce omnes.*" Thus this obscure colored man,

dying, has rendered a greater service to the world than can her most distinguished citizen, living.

It is interesting to note that every adverse criticism of my theories, my management of disease or of my conclusions, have come from those having no practical, and I fancy very little theoretical, knowledge of the subject; while those who have tested my methods have favored me with more valuable reports, and kindly expressions of approval of the same, than I have been able to transcribe or properly answer. I append a few of them here. I presented others in my papers read before the Sections on Pediatrics and Practice, American Medical Association, last week.

Dr. John McCurdy, one of the most distinguished physicians in the State of Ohio, many times president of his county medical society, ex-president of the Ohio State Medical Society, during the war was Regimental, Brigade and Division Surgeon, Assistant Medical Director, and Acting Medical Inspector of the Fourteenth Army Corps; has had 320 cases of typhoid fever under his care at one time. A firm believer in the idea that any limitation of the course of the disease in typhoid fever was impossible, in the county medical society in 1880 he spoke eloquently against the acceptance of my theories, and in 1893, in the same society in which he had spoken thirteen years before, said: "Dr. Woodbridge has made the greatest discovery that has been made in medicine in a hundred years. I have treated typhoid fever by his method for several years, and have aborted a large number of the sixty-five or seventy cases treated since 1890, although I have not been able to abort *every case* and have had two or thre deaths; these occurred, however, in cases that came under my care at the end of the second week of the disease or later. I know this treatment has power to destroy the specific poison of typhoid fever, and if begun early will abort

the disease. It is the best treatment I have ever seen advised." At a public banquet given to the Chamber of Commerce, at which there were probably present three hundred guests, Dr. McCurdy, responding to the toast "The Medical Profession," said: "We claim that one of our number here is the discoverer of a treatment for that universal and justly dreaded disease, typhoid fever, which as a rational and scientific plan of waging battle with that life-destroyer, is far in advance of any treatment yet practiced. This treatment has stood the crucial test of years, in hundreds of cases, and the theory is fully sustained by the long list of victories achieved."

Dr. C. R. Justice, the very able Health Officer of Poland, Ohio, and ex-member of the pension board, with whom I have had seventeen bedside consultations during the past year over cases of typhoid fever, had for years condemned my theories and denounced my position as "absolutely untenable," until I had learned to regard him as a devotee at the shrine of the "expectant method," who would go on to the end of his professional career treating the disease symptomatically, accepting the long weeks of sickness of his patients as something entirely beyond his control, and the deaths as visitations of Providence for which he was in no way responsible. I was greatly surprised, therefore, to learn that he had been investigating the subject for months. That he has continued his investigations to good purpose, is proven by the success he has secured in treating some very severe cases of typhoid fever (a few of the charts of which are submitted for your inspection), and by the fact that I was able to write to one of his brother practitioners advising him to call Dr. Justice in consultation, as he had treated so many cases by my method that I felt perfectly safe in saying to the friends of his patients that if they called him early

enough they need never fear that he would have a death from typhoid fever or that any of his patients would be severely sick.

Your attention is especially invited to the clinical chart of Case No. 111, Alonzo C., who had been under the care of two physicians at a neighboring town. He had been sent home with the statement that he had a terribly severe attack of typhoid fever and would necessarily be sick a long time. He arrived wildly delirious, with a temperature of 106° and all other symptoms of typhoid fever characteristic. His temperature touched normal on the eleventh day, and in a few days more he was out driving perfectly well.

Dr. Justice has treated during the year by my method twenty-three cases without a death, although some of them have been complicated by grave preëxisting or concurrent affections, and some of them came under his care at late stages of the disease. In speaking of the treatment, Dr. Justice said: "Looking back over the past, I can see where I could have saved many lives had I understood this method of managing typhoid fever as I do now, and I think I would be committing a crime were I to treat a case of the disease in any other way than that advised by Dr. Woodbridge."

Dr. J. A. Dickson, of Youngstown, Ohio — a gentleman of the highest integrity, a physician whose reputation as a general practitioner is happily not marred by his success as a laparotomist — sends me the following report:

YOUNGSTOWN, O., April 29, 1895.

I have treated several cases of typhoid fever with Dr. Woodbridge's treatment, and find that it will invariably cut the fever short if commenced early enough in the disease, the illness lasting often but a few days, the temperature soon dropping to normal and remaining there. I have also tried the mixed treatment — that is, using

the tablets as directed, and also, perhaps, some turpentine emulsion, quinine, etc.— but it pays better to "hew to the line."

I have recently been treating a case of the fever which came to me from another physician, who was ill. It had not been treated by Dr. Woodbridge's method, and when I first saw the case I found the temperature 104°, the pulse 100. I immediately commenced with the tablets, giving one every fifteen minutes for the first day, one every half-hour during the second day, and one every hour during the third day, etc. Upon the second day the temperature came down to 101.8°. Upon the third day it was 101.4°, fourth day 101.4°, fifth day 101.2°, sixth day 98.6°.

After this the temperature remained normal for four days, when the patient came down with pneumonia, with the characteristic rales, egophony, hepatization, and expectoration, from which he is now recovering. The temperature, upon the onset of the pneumonic trouble, went up from normal to 101.8° the first day, and gradually to 103°, but the tongue was moist and there were no symptoms of typhoid fever. If I were stricken with typhoid fever or one of my family were taken down with the dread disease, I think I would feel like sending for Dr. Woodbridge from the Atlantic Coast to the Golden Gate. (Signed)

J. A. DICKSON.

There must be royal blood coursing through the veins of Dr. T. F. Reed, of Massillon, Ohio, for of such material as he is made, made they the kings and rulers of the earth in olden times. In one of the darkest hours of my existence he wrote me as follows:

MASSILLON, Ohio, Nov. 14, 1894.

J. E. Woodbridge, M. D.

DEAR DOCTOR: I wish to add a word of encouragement to you against the many denunciations of your

treatment of typhoid fever. I wrote for your formula some time ago, and you referred me to the Journal of the American Medical Association, from which was obtained the desired knowledge. My father, Dr. T. J. Reed, has also used it, and we have met with very good success, and can offer only words of praise in its favor.

We have been giving about thirty grains of quinine per day (this being a great malarial district) for four days, and if at the end of that time we found the temperature high, and the symptoms the same or aggravated, we put the patient on the treatment prepared under your formula, and although we have not aborted the disease in every case inside of ten days, we have, with the exception of two cases, inside of fourteen days, and seldom see them after the sixteenth day. I have kept diligently the charts of the cases I have had, and have taken pleasure in showing them to the other physicians, who laughed at my daring to use the treatment. They take a different view of it now, though. Had I but known a few hours earlier of your intention to speak in Cleveland, I should have gone up, and let my voice help to defend you; or if not allowed that, at least it might be some satisfaction to you to see the few charts (ten in all) we have been able to prepare. Hoping that you may meet with greater encouragement at the hands of the profession, and that I may be able to meet you personally at some future time, I remain,

Yours truly,

T. F. REED.

A few days later Dr. Reed kindly sent the charts to which his letter refers, with the following letter:

"DEAR DOCTOR: I send you by this mail a few of my charts that were unmistakably typhoid fever cases, and some of them were the last cases of from two to four in the family who had similar attacks, but of which I re-

gret to say no records were kept. . . . We have had, in all, about twenty-five cases, and these charts are examples of them all. We are well pleased with the results we have had, and *can positively say that it is due to the form of treatment.* I hope the charts will be of some use to you, and anything that I have or may get, is at your disposal. I should like the charts returned, as I have no duplicates of them and want to keep them for future use. The temperature marked was taken at the height of fever."

Dr. E. J. March, of Canton, Ohio, sends me the following letter, with charts marked "Dr. March's Cases, Harry W. and Sadie J.":

CANTON, OHIO, April 26, 1895.

Dr. J. E. Woodbridge.

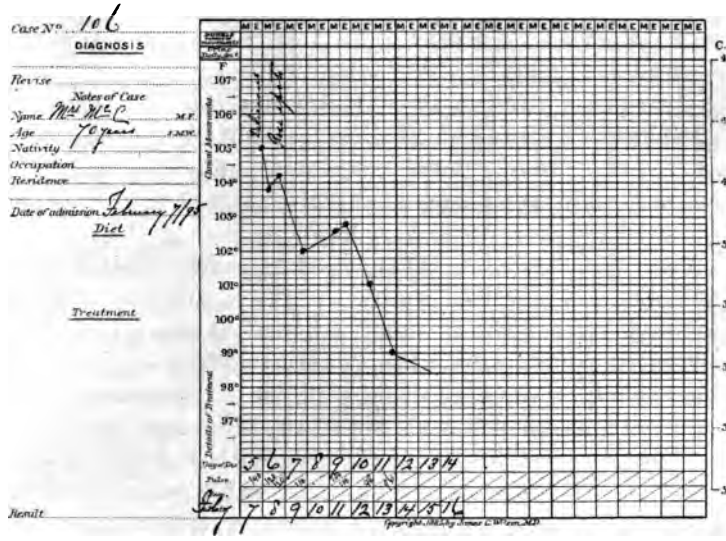
DEAR DOCTOR: An apology is due you for my long delay in giving the reports of *some* of the cases of typhoid fever which I have treated with the medicine you furnished so kindly. I have simply postponed it from time to till this afternoon I saw a report of some of your cases in P. D. & Co.'s *Therapeutic Notes.* Enclosed find the detailed treatment and temperature charts of two cases. The first, of Mr. W., was to my mind a typical case. The second, Miss J., a trained nurse, came from a family all of whom had typical and severe attacks, at which place she contracted the disease. She came back to Canton, and asked me to give her the "Woodbridge treatment," as she had nursed my first case, and was much taken with the results obtained in it. By the way, she had had large experience in the New York hospitals in nursing typhoid. You will see the results as per chart enclosed. I had two other cases as well marked and typical, but being in non-professional nurses' hands no notes or charts were kept, but they were both convalescent in ten days' time. The one, a woman about thirty years old,

had come from the bedside of her brother, who died from the disease, and she started in with a severe attack. I am sorry I did not keep such a record as I could myself, so as to add water to your wheel. I have a friend here who has tried the plan of treatment, somewhat modified, and says that the objection he has to it is that whereas he formerly made from $20.00 to $40.00 out of each case of typhoid, this cuts his bills down to less than $10.00 in each case. Doctor, I feel sure that you are on the right track, and if we should have a run in our hospital wards this fall, I will furnish you with some charts and results. Thanking you for your courtesy, (Signed)

E. J. MARCH.

I will now present from my own practice a few cases which ran a course similar to that of Dr. Cunningham's Case No. 3, with the exception of the unfortunate accident of the intussusception. These cases represent not only most careful and positive diagnoses from the clinicians' standpoint, as they were generally verified by one or more other physicians; but every precaution has been taken to reduce errors of diagnosis to a minimum, by calling to my aid every known means of excluding mistakes. The diazo-reaction described by Ehrlich, and the microscope, were appealed to, and in a large number of cases where malarial fever was suspected or had been diagnosticated, careful search was made for Laveran's hæmatozoa.

CASE No. 101.—Lenore S., aged 27 years. When I first saw her on the 14th of January, 1895, she had a temperature of 103°, pulse 120, and all other symptoms of typhoid fever as characteristic as were those in the case of her mother. A few days later, on the 17th, her temperature was 100°, pulse 100, and the general condition so much improved that I have no record until the 21st, when the temperature had been reduced to 99.8°,



and the pulse 96. I saw her the last time on the 26th, and she was out in one week.

CASE No. 106.—Mrs. McC., aged 70 years, mother of Case No. 101 and residing in the same house, was a feeble woman and one of five typical cases in one house. When I first saw her on the 7th of February, 1895, her temperature was 105°, pulse 140. Although she was reported to have been sick only five days, she was delirious; her bowels very tender; there was considerable tympanitic distention; rose-spots were abundant; her tongue was thickly coated, dry and brown. Her temperature, as you will see, had dropped to 99°, her pulse 96 on the 13th, after which her temperature was not taken, and in a few days she was able to be about, and at the end of a week was out of doors.

CASE No. 108.—Carolyn S., aged 2 years (daughter of Case No. 101). This patient was far from well on the 7th of February, when I was called to see her grandmother,

and on the 9th she had a temperature of 105.2°. She was discharged cured on the 16th, after nine days of treatment.

CASES NOS. 107 AND 109.—Katie McC. and Jerry McC., aged respectively 5 and 23 years, granddaughter and son of Case No. 106. These cases both showed decidedly characteristic symptoms of the disease, but recovered so rapidly that no records were kept.

CASE NO. 115.—John O'L., aged 28 years. This young man was taken sick on the 1st of March, and was treated by an irregular practitioner, who called two other physicians in consultation after twenty-two days of sickness, during which time (according to the statements of the family) a diagnosis was made of la grippe, malaria, pneumonia, and finally pneumonia with typhoid malaria. On the 22d of March an unfavorable prognosis was given and I was sent for. I found a typical case of typhoid fever, complicated with pneumonia. His temperature was 103.6°, pulse 118 and dicrotic; condition of nervous system very bad; he was sleepless and delirious; his abdomen was covered with rose-spots; tympanitic distention enormous; bowels very tender; tongue very dry, brown and cracked; he was spitting blood, and had three intestinal hemorrhages. On the 25th of March his temperature was 104.7°. However, his condition improved rapidly indeed. He slept naturally, without hypnotics, on the second night, when he was no longer delirious. Within three days his abdomen flattened out, the tympanitis disappeared, his appetite returned, and he declared that he was gaining strength on milk diet. On the 1st of April and the following day, the temperature being normal, he was discharged cured. Dr. M. V. Cunningham saw the case with me, for the purpose of watching the effect of treatment. He pronounced it wonderful.

CASE No. 120.—Mary O'L. (sister of Case No. 115, John O'L.). I was called to see this case on the 24th of April, and was given the following history: She had nursed her brother through a severe attack of typhoid fever a month before. During the latter part of his illness, she had severe headache and general malaise. About two weeks before I saw her, her headache increased, her back and limbs ached, she became dull and apathetic, and as her mother expressed it, "could hardly drag one foot after the other, she who was the most active and energetic of all the kith and kin." At this time she took the residue of the medicine I had left for another sister, under the supposition that she was taking typhoid fever (from which illness the sister recovered at once), after which she felt quite well for several days. Six days before my first visit, the headache returned, the back and limbs began to ache, and all the characteristic symptoms of typhoid fever presented themselves; her pulse was 120, her temperature 104.9°; her tongue heavily coated, spleen enlarged, her bowels very tender and tympanitic. I left her in the care of Dr. M. V. Cunningham on the ninth day of treatment, when I left to attend the meeting of the American Medical Association at Baltimore. During my absence she had a very severe intestinal hemorrhage, but made a good recovery. While Dr. Cunningham was making his daily visits, a sister was taken sick; proper treatment was instituted early, and the temperature never rose above 103.5°. On the seventh day, when she was doing very well, her husband came home drunk, and brought an irregular practitioner with him who very promptly decided that she had no fever. It was very fortunate for his reputation that he was called in after Dr. Cunningham had aborted the disease.

CASE No. 116.—E. S., aged 40 years (husband of Case No. 84). This patient resides about four miles from

my office, and he drove that distance to see me about one o'clock each day. He consulted me first on the 1st of April, when I found his temperature was 100° and pulse 112. Although feeling at times miserable, he was able to be out each day, and on the 15th his temperature had dropped to 99.4°, and pulse 80, and his recovery was excellent.

CASE No. 114.—Mrs. Michael J., aged 32 years. This was the fourth case of typhoid fever in the house at once (the three other cases were reported in the paper which I read in the Section on Pediatrics of the American Medical Association in Baltimore), a small son (Case No. 78), John J., and a little niece (Case No. 105), Annie W., having also had the disease some time before, and the symptoms were not well defined, so an absolutely positive diagnosis was not possible; but as the family used water from a well which was supposed to be the source from which several other cases had originated, she was treated as a case of typhoid fever, and assured that if the diagnosis were correct she would not be confined to bed or be sick long, or too sick to nurse her three children who had the disease, as I had been able to treat her from the beginning of her indisposition.

CASE No. 110.—Frank S. This was an ambulatory case, and although the symptoms seemed to indicate that the patient was growing worse, his temperature being 103° on the sixth day of treatment, he felt fairly well after the first two or three days.

CASE No. 118.—John S. This case showed premonitory symptoms of typhoid fever for more than a week before the patient consulted me. He drove to my office for a few days, with all the well-marked characteristics of the disease plainly to be seen, but finally had to go to bed for a week or more. The temperature ranged from 100° to 102.8° for eight days, and he was discharged on the twelfth day, cured.

CASE No. 117.—George J., aged 14 years. Came to my office on the 14th of April, and called daily for four or five days, when his afternoon temperature was only 101°; but his other symptoms were sufficiently characteristic to justify a diagnosis of typhoid fever. I soon discovered that he was not doing well, and warned him of the danger of neglecting to follow implicitly my instructions, after which he improved for a few days, but again grew worse. Sending for his father, I learned that he had been left to take his medicine or not, as he chose, and choosing the latter, he had been casting the expensive medicine which I gave him into a cuspidor. I refused to have anything more to do with him, unless he were properly nursed, when his mother gave up her situation and gave him good care; but more than two weeks had now passed, and instead of being well as he should have been, his symptoms were all aggravated; his pulse was 136; temperature 103.4°; the tympanitic distention of the abdomen was enormous, and his bowels were very tender and painful. Leaving him in Dr. Cunningham's care when I went to Baltimore to attend the meeting of the American Medical Association, and returning on May 13th, the doctor requested me to see him, saying that he was unable to control him. On several occasions he had stolen out of bed and secured bread and other articles of solid food, and once he was said to have eaten a pound of candy. I ordered him to be handcuffed to the bed, where he still remains, but is nearly well.

CASE No. 104.—Miss Ellen H., aged 20 years. Residing in a neighboring town, she had been sick ten days, under the care of the family physician, who, being one of those gentlemen who do not believe in the possibility of aborting typhoid fever, very naturally blundered in his diagnosis, and treated her for la grippe until about four days before I was called. At this time he correct-

ed his diagnosis to typhoid fever, which caused no little excitement, as the other most prominent physician in the town was and is an enthusiastic advocate of the "Woodbridge method." (He says publicly that no patient should die of typhoid fever.) Thus the friends of scientific medicine and the friends of "old fogyism" became partisans; and for days that young lady's mother, in her anxiety to save her daughter from death or needless suffering, was swayed from side to side. It would be hard to tell which party would have won, had not the condition of the patient become alarming, for although the doctor was keeping the temperature down nicely with acetanelid and sponge-baths, and was sustaining the heart with strychnine and digitalis, her mother could see that all was not right, and she at last telephoned to me to come down and meet the attending physician in consultation. I found both physician and friends exceedingly anxious about a "failing heart," a threatening danger which I assured them would disappear as soon as a little of the poison of the disease was neutralized. I discontinued all heart-tonics and stimulants, and all medicine, in fact, except the three prescriptions which I have advised in former papers, and before I made my next visit the following afternoon, all of the ill-omened heart symptoms had disappeared, and the pulse had resumed a healthy tone. In two or three days, all of the nervous symptoms, all of the tympanitis, all of the abdominal tenderness, were gone, never to reappear, and she was very comfortably sick, although, as you will see, the temperature did not touch normal until the eleventh day.

In conclusion, I wish to say that an apology is due the large number of physicians who have reported cases of typhoid fever treated and aborted by the "Woodbridge method" which I have been unable to reproduce here or in previous papers for want of time — an unin-

tentional and unavoidable discourtesy, since the twenty minutes allowed me in the medical societies or the space in the "Transactions" would have been wholly inadequate to admit of the briefest possible mention of all the valuable and valued reports in my possession. But every case reported is an object lesson to those who doubt the possibility of aborting typhoid fever, and will aid in hastening the day when death or long or severe illness will be unknown. Hence the medical profession is to be congratulated that it has in its ranks proficient men, able enough to learn the truth and brave enough to teach it.

DISCUSSION.

DR. MITCHELL:

Remembering how frequently we have been disappointed in special methods in diseases of this kind, Dr. Woodbridge cannot wonder that this Society has met his reports with incredulity. It seems to me the figures he presents here demand our most careful consideration. Allowing for mistakes in diagnosis, a record of 800 cases with nine deaths, a mortality of a little over *one per cent.*, should appeal to us in the spirit of inquiry and trial. Intestinal antisepsis we believe is of value in the treatment of typhoid fever, although we have been inclined to assign it a secondary place in the treatment. I believe if Dr. Woodbridge had not ignored the principles upon which we have been accustomed to rely for so many years, namely, rest and a liquid diet, we should have listened more readily to his reports as a contribution to the *antiseptic treatment.* It seems certainly peculiar that he can disregard those things which pathology and experience have taught us in the past are of the utmost importance. For one, I am willing to say I am so far convinced by the report of Dr. Woodbridge that I shall give this combination of remedies a fair and impartial trial. At the same time, I shall not give up the rest, liquid diet, and, when required, some of the applications of antipyresis. I hope the members of the Society will try this treatment, and that when we come back next year we shall be able to bring from

a large number of men, from various sections of the country, treating various classes of people, in private and hospital practice (and the latter we know is the severest test), sufficient data to enable us to arrive at a more correct idea as to its value.

The mortality of typhoid fever in private practice under the prevailing methods of treatment is small. The mortality in hospitals, where we have the worst class of cases to treat, has been very greatly reduced of late years. Intestinal antisepsis has, no doubt, been one of the factors of this reduction. Some years ago Dr. William Pepper reported a series of a hundred cases without a death, treated by nitrate of silver. Still later on he reported that in an experience of many years he had not lost any patients treated by this drug, which had come early under treatment. Dr. Waugh has reported a hundred or more cases without a death, treated with the sulphocarbolate of zinc. So we have various drugs reported by various men to give the best results. So it seems to me we should consider this a portion of treatment, and I believe when it comes to be applied generally by different men, we shall find we still have use for other means of treatment already found of value. The time is too short for me to touch at length upon the treatment of typhoid fever. These statistics compare very favorably with the cases Brand reported from the use of the cold bath. We cannot in any disease rely infallibly and invariably upon any one known remedy.

Dr. Woodbridge's formula, if I remember correctly, contains calomel, guaiacol, thymol, menthol, and eucalyptol, the latter volatile substances, which are readily absorbed and which are carried by the blood in comparatively large proportions without producing damage to the blood or tissues. Perhaps this *combination* gives better results than any single remedy. Calomel is conceded to be one of the most valuable of intestinal antiseptics. Guaiacol is readily absorbed and carried through the tissues, where it may produce its antiseptic effects. Thymol was used and warmly recommended as long ago as 1882 or 1883. It is commended by Henry, in Hare's System of Therapeutics.

I hope Dr. Woodbridge, in closing this discussion, will give us again a statement as to the exact ingredients of the mixture he uses, and his method of using it.

GUAIACOL AS AN ANTIPYRETIC.

DR. FACKLER:

I shall certainly not abuse your kindness in calling upon me nor exhaust the patience of the members present by engaging in a lengthy discussion of the subject of the paper. The president, at my request, gives me an opportunity here to call your attention to the use of guaiacol as an antipyretic in typhoid fever and other febrile diseases. I refer to the external application of the remedy as first suggested by Dr. Sciolla, of Genoa. Although most of you have undoubtedly read reports of this treatment in the journals and perhaps employed it, a brief description of the method may not be out of place. The site for application may be selected on any part of the body, but preferably the chest, abdomen, inner surface of the arm or thigh. An area of the skin about six inches square is thoroughly washed and dried. From ten to thirty drops of guaiacol are painted upon this surface with a camel's-hair brush. In order that the remedy may become thoroughly incorporated with the integument, the inunction should be vigorously conducted for at least ten, better fifteen, minutes. The parts are subsequently covered with a layer of absorbent cotton and oiled silk. I have brought a number of temperature charts, which I present as evidence in connection with the statements I am about to make. The charts are duplicates of the official ones arranged by the nurses of the Cincinnati hospital, and show the variations of temperature occurring under the influence of the guaiacol treatment. You will notice that in a number of instances the thermometer was employed at intervals of five to fifteen minutes from the inception of the application. You must agree with me that a careful scrutiny of such records, which offer accurate data, is of more practical value to the critical observer than would be the reading of an elaborate treatise upon the same subject. You will note how in many instances the temperature began to decline within ten to fifteen minutes after the inception, hence before completion of the inunction, how rapidly it pursued its downward course during the first two hours, especially when a large quantity of guaiacol was used, how the descent became more gradual until the temperature

reached its lowest point five or six hours after treatment. You will observe that a reduction of two to four degrees was the result, depending upon the individual case, but chiefly upon the dose applied. In one case (pneumonia) a fall of six degrees is recorded. The marginal notes show that the antipyretic effect was usually accompanied by perspiration, and that the subsequent rise was occasionally introduced by a chill.

The method was adopted in thirty cases during a four months' service in the Cincinnati hospital, ending April 1st; ten cases of pulmonary tuberculosis, six of typhoid fever, five of acute pneumonia, five of influenza, two of facial erysipelas, and two of tubercular peritonitis, comprised the list.

It will be observed that the antipyretic effect of the remedy thus applied was more or less pronounced in all cases except the two of facial erysipelas. The chart of one of these cases shows a rapid rise in temperature after the use of guaiacol to 106°. In this instance we were forced to resort to another antipyretic in order to subdue the symptoms of cerebral excitation, which were appearing and evidently due to the abnormally high temperature.

From these observations I feel safe in the assertion that this method is a prompt and efficient means to reduce abnormally high temperature in very many cases, that its judicious application is not attended by any deleterious effects upon any internal organs nor upon the skin at the site of application. The general course of the disease is in no way influenced by the treatment.

The remarkable action of guaiacol is the more astonishing since its assimilation occurs through the skin, the absorbing power of which has hitherto been regarded as very meagre. It was suggested that, because of the evaporation of the guaiacol, a portion of that applied to the skin gained entrance into the organism with the inspired air. If properly applied, however, evaporation is prevented by means of the impervious dressing. Furthermore, it has been demonstrated by Stolzenburg and Aubert that inhalations of guaiacol vapors according to the Curschman method fail to produce like results. In the healthy individual the appli-

cation of one to five grammes is not attended by any appreciable effect. These observations undoubtedly prove the rapid absorption of guaiacol through the skin and a specific action in febrile states. They are substantiated by experimental research. Within one quarter of an hour after its application guaiacol can be detected in the urine and expired air. Elimination seems to be completed in five to twenty-four hours, within which time 55 per cent. of the amount used is recovered in the urine. As a rule the patients speak of a guaiacol taste soon after treatment. The assumption of Sciolla that the guaiacol renders the pyrogenic toxins inactive is probably the true solution of the question of mechanism of its antipyretic action.

The method can be employed in the majority of cases, if judiciously applied, without fear of disastrous results. In fact, its history, now extending over a period of two years, is not marred by the report of a single death. It has been claimed by some that it is a dangerous procedure, and that the use of large doses is followed by symptoms of collapse, which has, however, never proved fatal. It is with this as with any other remedy expected to produce decided effects. We must eliminate cases in which we may expect collapse, and we must exercise some caution in regulating dosage. Naturally, the repeated application at short intervals in debilitated individuals is contraindicated on account of the deteriorating effect of the accompanying perspiration and of the chill which so often accompanies the subsequent rise of temperature. Those who decry the guaiacol treatment would certainly not abstain from the use of the alkaloids in small doses, although they are fully aware of the deleterious influence of large doses. It is a wise plan to begin with the application of ten drops, and to be guided in the regulation of further dosage by the effects produced. No disagreeable or disastrous effects will be observed if this gradual increase in dosage be adopted. As Dr. Mitchell has just stated, the use of the cold baths in typhoid fever is frequently contraindicated because of their undesirable effect. From my own experience with the guaiacol treatment I feel justified in recommending it as a measure worthy of trial. My remarks are in no way to be construed as suggesting

a remedy the use of which in typhoid fever would have a curative effect. I unfortunately heard only the closing remarks of the author of the paper, but from the latter and those of the previous speaker I learn that he presents a specific cure for typhoid fever. It appears strange that in the light of our present knowledge of the etiology and pathology of the disease, such claims should still be made before a body of scientific men. The author of the paper is, however, not the first one to claim the discovery of a specific for typhoid. Many have preceded him with the same boast. They were kings, who placed the crowns upon their own heads, but they sat on tottering thrones that have long since crumbled to the dust.

DR. WOODBRIDGE:

I merely wish to correct an impression that may be drawn from the discussion of my paper, that the reduction of the temperature in typhoid fever is the result of treatment to be most desired. I do not believe it, nor do I believe that the elevation of temperature in early stages of the disease in the adult is an element or even an indication of danger, except so far as it is indicative of the absorption of the ptomaines and toxins of the disease. The gentleman who spoke last, like Osler, Love and others, spoke without practical knowledge of the subject, and his arguments, like theirs, are valueless. Last week, when the paper I presented to the Section on Practice of the American Medical Association was under discussion, a very distinguished professor from Chicago (who in lecturing to his class, had said: "If any man says he can shorten the course of the disease in typhoid fever, tell him he don't know what he is talking about") arose and said: "Having had no practical experience with this method, I feel incapacitated from discussing the paper. However, Dr. Woodbridge's sincerity cannot be questioned, nor can the honesty of those who have tried the treatment and report such excellent results; and I feel that I would be remiss in my duty to my patients, if I did not give them all the benefit to be derived from this treatment."

If one of the gentlemen who assert that medicine has no power to abort typhoid fever, basing their assump-

tions on its action and limitations, will show how any of these remedies produce their effects, we will attach more value to the arguments so confidently advanced. I know that typhoid fever can invariably be aborted and death can invariably be averted if properly treated from the outset of the disease; and also that it can occasionally be cut very short at later stages, even after the appearance of rose-spots and other so-called pathognomonic symptoms, and sometimes even after the supervention of intestinal hemorrhage and other grave complications; and if these results are not invariably obtained, one may safely say there is something wrong with the application of the remedies — or with the remedies themselves.

NOTE.—The brief outline of treatment given in the last volume of the "Transactions," unsatisfactory as it is, can hardly be greatly improved upon in a necessarily short paper. I shall, therefore, in a few weeks, publish a full and exhaustive treatise on the subject, under the title, "Typhoid Fever and Its Abortive Treatment."

THE RECOGNITION OF INCIPIENT INSANITY.

A. B. RICHARDSON, M. D., COLUMBUS.

To the practitioner in general medicine no feature of the study of mind disorder is more attractive or more intensely practical than that which pertains to its early recognition. The law of its development, the phenomena of its evolvement, and the pursuit into the fastnesses of its hidden origin, are subjects of entrancing interest to him. It is right that this is so. It is as it should be. The physician in general practice may not consider that a comprehensive study of the subject of insanity as a whole is within his province. He may reasonably consider the field too extensive for his time and too intricate for his means of investigation, but he above all others of his brethren of the healing art is the conservator of the public health ; he it is who must know the dangers lurking in the shadows and point out the sources and the manner of development of disease and disorder. In an especial manner he is the custodian of the public health, the conservator of the public weal, *in menti, in corpore.*

The problem thus important is not always as easy of solution as would at first thought appear. To the unthinking the symptoms of insanity are always self-evident. In fact even judicial authority will sometimes maintain that untrained and lay evidence is as valuable as any other in determining these phenomena, and following in the wake of such opinions much unjust criti-

cism is engendered. The truth is that there is no field of medical investigation in which more accurate scientific investigation is required than in the region of the development of mental disorders. It is important that the manner of this development should be carefully studied, and the characteristics of the first evidences should be most minutely examined. The importance arises with the gradual evolution of the phenomena and with the very unfavorable conditions that result when these conditions become fully established. Prophylaxis becomes more important than cure, and he who counteracts recognized tendencies and incipient disorder is more essentially a savior than he who redeems from the fully developed disease.

The complexity of mind phenomena greatly enlarges the scope of this investigation. It is more comprehensive than the examination into the disordered function of any other organ, because mind activities are so much more extensive in the field of their operations. After all, however, the same laws are seen to be operating here as elsewhere. The solution of the problem of the origin of mind disorder becomes simply one of the study of the relations of supply and demand in the economy of the organism. In the evolution of mind activity, energy is expended that is represented in the waste of physical elements. To produce regular, well-balanced and methodical action, the brain must be supplied with a requisite amount of proper nutrient pabulum in proper relation to the energy expended. Disordered action here almost uniformly indicates a disturbance in the healthy balance between this supply and the demand upon it. Speaking broadly, the study of incipient mind disorder becomes a study of brain nutrition.

Three elements determine the extent and character of these disturbances in any given case. There is first the type of structure of the cell elements of the particular

brain. This varies greatly in different cases. The variation is largely, in fact we may safely assume almost entirely, in the varying capacity of the cells to assimilate and appropriate nutrient material. The extent of their fibrillary ramifications and the consequent extent of their functional capacity must be determined by this. Their function as trophic centres is one of their most important functions, and upon the varying extent to which they are capable of performing this function depends their varying degree of stability and of regulated energizing. The nervous type is that which readily shows exhaustion, has comparatively limited power to recuperate, and whose energy is fitful and irregular in its exhibition. The type of largest power and firmest stability is that which can longest endure continuous functional activity without signs of exhaustion, shows the greatest range of energy with the least evidence of fatigue. In simple terms it is a question of nutrition.

The second element is the actual as well as the relative amount of energy demanded of the cells. The kind of demand that is most frequently injurious is the overstrain of worry. Simple intellectual or physical exercise, of normal character, is not often so excessive as to be injurious. I know that this is against popular opinion, but it is in accord with my experience and I believe with that of most observers. There are exceptional cases in which simple overwork, kept up through too many hours, at the expense of sleep and rest and without sufficient recreation or variation, has resulted in serious organic disease without the addition of any form of dissipation or other excess.

I have a case now in my care that is a marked illustration of this exceptional condition. F. S., aged 32, well-educated, bright, industrious and painstaking, was appointed superintendent of a blast furnace at 24 years

of age. He gave very close attention to detail, and besides interested himself in other matters, became president of a glass manufactory, president of the board of education of the city in which he resided, one of a board of three to prepare plans and build water-works, was officer in a Masonic lodge, and took an active part in all these enterprises. He was given to details, not trusting these to others, but putting in many hours a day, not taking any recreation or varying his activity by any amusement. He was of exemplary habits in every respect. Almost a year ago he began to show signs of mental impairment in the form of entries made daily in his diary, which he had kept for many years. These became more a record of comparatively insignificant events in his daily life, rather than of his business transactions as they had been before. His memory began to show signs of failure, his speech became slower, and there was a depreciation in motor coördination. His gait was awkward and somewhat irregular. He was taken to Philadelphia, and was under Weir Mitchell for almost three months. The motor symptoms seemed to improve, but the mind disorder increased. The dementia became marked, and delusions of an indefinite character came on. He was eating and sleeping well, but the brain cells gradually deteriorated in functional capacity. Since he has been with us his course has continued steadily downward. There is now very little functional capacity left in the cells. He can scarcely respond to simple questions. The reaction time is very much retarded, yet his general nutrition is good. He eats and sleeps well, and does not lose flesh. There seems to be a simple degenerative change in the cell elements from overstrain, too prolonged stimulation resulting in a loss of power to further assimilate nourishment. Excessive fatigue, with its accompanying hyperemia and vascular disorder, does induce such de-

generative changes, as has well been demonstrated by experimentation, but it is not often in practice that we see uncomplicated cases of this character. There is usually the added effect of drain by some excess, as the overstimulation of alcohol or some drug.

From worry, which is much more frequent, there is the same excessive hyperemia and waste that is found in simple overstrain, and the result is the same. It is more rapid in its action, however, and more damaging in its effects. The result is rapidly induced fatigue, disordered function, and a depreciation in the power of the cell elements to recuperate. The physical effect is the rapid waste in the protoplasm of the brain cells, and especially a lowering in its vitality, rendering it less able to renew its substance and less capable in energizing.

The third element to be considered is the variation in the quality and quantity of the nutrient pabulum supplied to the cells.

A simple anemia will of itself cause, in certain cases, symptoms of decided mental disorder. Miss A. W., aged 40, was referred to me for examination. She was anemic in a marked degree. She was almost bloodless in appearance. She had suffered from menorrhagia for several years, and for the past few months the flow had been almost constant. Examination revealed an intramural fibroid about the size of an orange. A few months before she had begun to show signs of mental disorder, was extremely suspicious of her mother, brother and sister, with whom she had lived happily and to whom she was much attached, accused them of doing things to annoy her, heard voices at night, and believed persons came into her room at night to attempt her injury. She finally became much excited over the fancied injustice of her mother, screamed out at the breakfast-table, and could be quieted only with diffi-

culty. At times she was able to recognize that her ideas were delusions, and was sorry she had acted so. At other times they would return in all their intensity and she could not resist them. We advised removal of the tumor and the stoppage of the excessive flow of blood. This was done, and at the same time the appendages being found the seat of cystic degeneration were removed. It was found necessary to remove the entire uterus. She recovered from the operation nicely, has steadily gained in strength, her color has much improved, and she has not a single symptom of mental disorder since the operation. There was no hereditary influence, no worry nor other sufficient cause for the mental symptoms, and we felt justified in attributing them to the simple anemia. We believe the result demonstrated that we were correct.

But simple anemia uncomplicated is not often the cause of mind disease. It is usually complicated with the circulation of a poison in the nutrient fluid, such as alcohol, opium, the syphilitic ptomaines, the germs or their ptomaines of other specific or febrile diseases, the retention of poisonous waste products, or changes in the vascular arrangement that interfere with the proper supply of the nutrient fluid in the proper quantity. This may be through changes in the vessel walls, variations from the normal in blood pressure, or obstructions to their distribution of the blood and consequent impoverishment of the cell elements. In every case the first sign of this disturbance, this poverty, is the exhibition of painful and difficult action by the cells.

If closely examined, every case of mental disease will be found to have a prodromal period of longer or shorter duration, of greater or less intensity in its symptoms, that is characterized by depression and difficulty in the exhibition of mental action. Mind activity becomes

more distinctly an effort, and there is a morbid depression that can not be overcome. Sudden shock will produce such condition in a few moments, while in most cases the period extends over weeks and months. Without warning in the first case, we cannot avoid the result; in the second case we can do much to ward off what is otherwise inevitable, and we should be prepared to interpret aright the signs we see. Whenever worry or routine work is causing fatigue and depression, whenever mental action becomes irksome and requires unusual effort, advise at once a change. Introduce recreation, change of scene, rest, more sleep, different exercise or more nutritious dietary. Above everything else, remove if possible the cause of worry or try to modify its injurious effect.

The incipient stage of mind disorder is painful discharge of mental functions and increased sense of effort in intellectual operations. A typical case is that of the housewife, overworked, worried by the care of children and often by the misconduct or neglect of husband, or by financial straits and misfortune to loved ones, a constant "gnawing at her vitals" in a much more than poetical sense, growing anemic, a sense of burden and a depression with her constantly, until sooner or later, with her type of cell structure, their nutrition becomes permanently impaired, and an outburst of melancholia or mania ensues.

Sometimes the changes are very gradual, and so subordinated to the volition of the patient that they exist for months without detection, and friends are startled by some overt act of mental unsoundness, coming apparently out of a condition of usual health. The suddenness here is nearly always apparent rather than actual. Close examination will disclose some form of excessive demand on the brain cells, or some unusual

interference with their supply of nutritive material, running through preceding weeks and months.

Excess and dissipation cause many cases by adding elements of interference with cell nutrition. Nervous exhaustion, tremor, excessive morning fatigue, emotional tendencies, instability in intellectual action, are among the prominent incipient symptoms of these forms. It is scarcely necessary to point out the fact that all of the early signs of mind-disorder from dissipation and excess are those of nutritive impairment. Your daily experience will demonstrate it, but it is well to keep this feature more prominently in view. In advice as to treatment it is most important. Removal from temptation or the opportunity of indulgence, rest to the cells, plenty of sleep, nutritious dietary, regulated physical exercise, proportionate to the capacity of the individual, the prompt removal of waste products — all these are indications to restore the normal nutrition of the cell elements, and to remove the tendencies toward more permanent and pronounced disorder.

It is not so important to be able to decide technically whether this symptom is evidence of a psychosis and that of a neurosis, whether this sign is that of insanity or only nervousness, not nearly so important as to know what things are evidences of incipient nutritive disturbance, to know what things are "indications" and what they indicate. The prodromata usually exist through a longer period than the friends believe. Beyond every other disease insanity is of slow growth. The brain will withstand many abuses and much irregularity before giving way, and it is only frequent repetition of excessive indulgence, the constant erosion of the ever-recurring friction of care and worry, that finally result in structural depreciation and disordered function.

In no other disease is it so difficult to correct the diseased tendencies. These frequently depend upon en-

vironment that a medical man cannot change. Advice often cannot be followed because of financial or domestic obligations and restraints, and oftener advice will not be followed because believed unnecessary. What is done must often be done against the wishes of the patient, and the utmost tact will be required to secure the adoption of the desirable changes.

Of all the prodromal symptoms of mind disorders, insomnia is the most constant and the most troublesome. It is the expression of morbid and extreme fatigue of the brain cells, their cry for nutriment and rest. It usually exists for weeks or months before the patient comes under observation. Its proper remedy is often extremely difficult to find. It is easy to give a narcotic, and the apparent rest to brain that it gives is fascinating but not safe. Always remember that. You will often be compelled to administer narcotics as the lesser of two evils, but remember you are never thereby producing a natural sleep or a normal rest to the brain. It is a stupefaction, produced usually by the direct effect of the drug on the protoplasm of the cell, and simply places function in abeyance rather than gives opportunity for recuperation. Before resorting to them, therefore, exhaust every more natural means of inducing brain rest. Try the effect of heat or cold, of baths, of exercise, of stimulants and nutriment, of counter-irritation, the regulation of the excretions by the bowels, the kidneys and the skin, the use of such drugs as tend to promote nutritive repair and the reduction of waste. Reserve pure narcotics to the last, and use them only when nothing else will reduce waste from overaction, bearing in mind all the time they are in use that so far from promoting nutrition they usually have the opposite tendency, while the indications are to increase the assimilation of nutriment by the brain cells, control and regulate their functional activity and remove the products of their waste.

Disordered function may find expression in emotional depression or exaltation, in morbid fear and undue timidity, or in over-confidence, rapid ideation, and quickened muscular action. It may slowly and insidiously develop as systematized delusions of suspicion and persecution, or find expression in frequent and irregular emotional storms. The roots of the disorder may be in defective development or arise from the direct effect of overstrain and excessive fatigue, yet in every instance the difficulty is the result of nutritive impairment, and the problem is how best to restore the proper balance between waste and repair, between supply and demand, the proper regulation of the burden to the strength of the bearer thereof.

DISCUSSION.

DR. ZENNER :

I can scarcely do more than to say words of commendation, or rather of thanks, for the excellent production just placed before us. One matter the essayist spoke of I would like to emphasize, and that is the fact that it is worry and not work that does harm to the mind. I think every practitioner, every one who has seen much of mental disease, will recognize that fact. And I doubt whether work alone would do the harm that the case the doctor spoke of would seem to illustrate. Where there is excessive work there is always more or less of an excessive emotional condition, and that probably plays more of a *rôle* than anything else. The amount of work done plays a comparatively trivial part.

There is no doubt about the difficulty of the recognition of the early stages of insanity. Any one of you who has had occasion to observe cases develop under his own eyes, as many of you have, among the people you have had long under observation in the sick-room, perhaps, will recall that it was long before you recognized the fact that the patient was insane. The fact is, we see ordinarily but a fragment of the mental life, but a thought here and there, but an action which speaks of the life; but of the continuity of the thought we can tell little.

I wish to speak upon what I consider an exceedingly important thing, even though it does not come within the scope of the essayist's paper, and that is some objective signs of insanity. I will mention only two. One is a rigid pupil, which does not respond to light; and the other is the absence of the knee-jerk. It is surprising how often you will find one or both of these conditions at a very early stage, when the case will be brought to you as one of nervousness in which there is no mental disease apparent, and yet the presence of those signs alone may put you on your guard and enable you to be prepared for its earliest manifestations. I have seen those cases over and over again, where patients were sent to me for some nervous disease by physicians, where one or both of these conditions was present, and where we would subsequently have general paralysis or paresis. I think there is nothing more important than the study of such objective symptoms.

NEURAL INFIXATION.

R. HARVEY REED, M. D., COLUMBUS, O.,

Professor of the Principles and Practice of Surgery and Clinical Surgery Ohio Medical University, Surgeon to the Protestant Hospital, etc.

By the term neural infixation, I mean the implanting or engrafting of one nerve into another.

Whilst based on the same physiological principles as those which govern the suturing of nerves, I am inclined to the belief that there are other factors which enter into neural infixation that do not necessarily accompany nerve suturing.

I am greatly indebted to Prof. G. Carl Huber, of the University of Michigan, for two very interesting reprints from the *Journal of Physiology*, Vol. XIII., No. 5, and Vol. XIV., No. 1, in which was published a "Physiological, Histological and Clinical Study of the Degeneration and Regeneration in Peripheral Nerve Fibres after Severance of their Connections with the Nerve Centres." The conclusions arrived at in these monographs embrace the combined experiments of Professors Howell and Huber. In addition to these reprints, Prof. Huber has very kindly given me additional data relative to nerve suturing up to the present date, and has very generously allowed me to use, in this paper, extracts of the text of a paper which he is now preparing on this subject.

In these experiments, conducted by Professors Howell and Huber, it was demonstrated that whenever a nerve is cut, the peripheral part undergoes degeneration. In

this degeneration the axis cylinder is involved, together with the medullary sheath. They were led to believe that such a thing as primary union without degeneration of the axis cylinder and medullary sheath did not and would not occur in either experimental work or surgical practice. They also arrived at the conclusion that the degenerated portion of the peripheral nerve was regenerated by the downward-growing axis cylinder of the central stump. In a communication received from Prof. Huber under date of March 26th, he says, "As far as we could make out there was no regeneration of the peripheral stump unless it was sutured to the central stump or unless means were provided for the down-growing central axis cylinder to reach the peripheral stump."

Did time and space permit on this occasion it would afford great pleasure to review the many interesting experiments made by Prof. Huber and reproduce the tables and drawings he has furnished to illustrate this fascinating subject; but as all this will appear in detail from the pen of this distinguished author and investigator, I will only use a few extracts which bear more particularly upon the subject of neural infixation.

So-called nerve grafting was performed as early as 1872 by Litievant, of France, to which I shall refer later on in this paper.

In the reprint above referred to, we find that Flourins cut the two principal trunks of the brachial plexus in the fowl, putting one to the upper and one to the lower surface of the wing. The ends were then cross-sutured. After some months the bird regained the use of its wings, and mechanical stimulation of the central end of the nerve trunk caused movements of the muscles of the lower surface of the wing, and *vice versa*. A study of the experimental work of these eminent physiological experimenters and observers is quite sufficient to demon-

strate that nerve suturing is not only possible but practicable.

Without taking up further time in the study of the physiological and histological changes that take place in nerves after section or excision, I will proceed to consider briefly, from a clinical standpoint, a slightly different form of the same class of cases.

In the research made on this subject I have been unable to find any one who has either, experimentally or otherwise, performed the operation of neural infixation after the method introduced by Dr. W. J. Galbraith, of Omaha, Neb. The doctor's method is intended to prevent paralysis when a section of the nerve has been destroyed, by accident or otherwise, where the gap between the central and peripheral ends is so great that it can not be sutured, or bridged across with catgut, or tunneled over with a tube of decalcified bone. Under these circumstances, the doctor has demonstrated by his case that the central end of a nerve can be implanted into a parallel nerve at a certain point, and two or three inches lower down the peripheral end can be infixed into the same nerve, and that the impressions of the injured nerve will be carried through the section of the parallel nerve, from the central end to the peripheral end of the injured nerve, and *vice versa.*

PLATE I.—NUMBER 1.

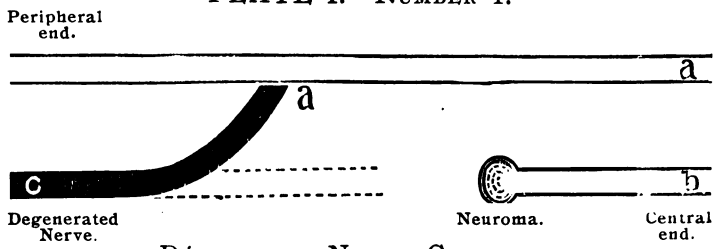


DIAGRAM OF NERVE GRAFTING, ACCORDING TO LITIEVANT.

The question will no doubt arise as to why the peripheral end of the injured nerve does not undergo degeneration, which has been so lucidly described by Howell and Huber in both direct and indirect nerve suturing, or if it does undergo degeneration, how shall we account for its regeneration and the return of its normal functions?

By referring to the case of the French surgeon, Litievant, we find that the central end (see Plate No. I.) was not implanted into the healthy parallel nerve, but only the peripheral end was infixed and the result was a bulb or neuroma formed at the central end, and degeneration of the peripheral end was a natural consequence. It only requires a glance to observe that there was no connection between the central and peripheral ends of this nerve, consequently it is not surprising that these unfavorable results followed.

Prof. Huber in conducting the experiments on cross-suturing (see Plate No. II.) cut the parallel nerves *a* and *b* (No. 1). He excised a portion of *a* and engrafted the central end of it into the central end of *b*. He, at the same time, shortened the peripheral end of *b* and engrafted it into the peripheral end of *a*. He then sutured the peripheral end of *a* and the central end of *b* together. (See Plate II., No. 2.)

PLATE II.—NUMBER 1.

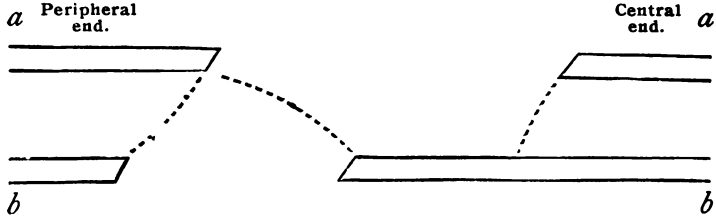


DIAGRAM OF NERVE GRAFTING, ACCORDING to HUBER, SHOWING NERVES CUT READY FOR IMPLANTATION.

The results of his experiments, as will be shown by his paper which he is now preparing, and which he has very kindly permitted me to use, are as follows : a bulb, or neuroma, formed on the central end of *a*, whilst the peripheral end of *b* degenerated. The central end of *b* united with the peripheral end of *a*, through which nerve the impressions were conducted.

This experiment corroborated the results obtained by Litievant. It will be observed that Prof. Huber in his experiments "broke the circuit," so to speak, of both nerves *a* and *b*. By his method of cross-suturing he required the impressions of central *a* to pass through a part of central *b* across the point of suture, before they could reach the peripheral end of nerve *a*. In a similar manner the nerve impressions of central *b* must cross the point of suture and be transmitted through a part of the peripheral end of the nerve *a* before they reach the peripheral end of nerve *b*. At the same time the peripheral end of nerve *b* is practically isolated from the central ends of both *a* and *b*, and is attached to the peripheral end of nerve *a* which has also been cut, and the legitimate consequences are that the peripheral end of nerve *b* undergoes degeneration.

By the following explanation and diagram, it will be observed that the operation performed by Galbraith is

PLATE II.—NUMBER 2.

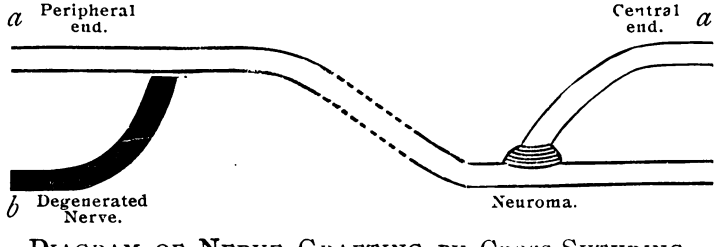


DIAGRAM OF NERVE GRAFTING BY CROSS-SUTURING, ACCORDING TO HUBER.

essentially different from either of those performed by Litievant or Prof. Huber.

To illustrate Dr. Galbraith's operation (see Plate No. III.) we have parallel nerves *a* and *b* (No. 1). Nerve *b* received an injury and the portion represented by the dotted lines is excised, leaving a gap too wide to be sutured or bridged across in any way. By Galbraith's operation the peripheral end of *b* is infixed into the peripheral end of the uninjured nerve *a*, and the central end of *b* is implanted into the central end of *a*. The results, as shown by Dr. Galbraith and more recently by Dr. Means, of this city, and by the case which I will present to you in a few moments, where the same operation was performed, were all quite satisfactory, showing that where this operation is performed, the nerve impressions are carried from the central end of *b* through a part of *a* until they reach the peripheral end of *b*, and from there on to its extremity.

In harmony with the experiments of Prof. Huber, we would not expect the central end of *b* to undergo degeneration, but instead, it becomes engrafted into the uninjured nerve *a*, and instead of the peripheral end of *b* becoming degenerated and remaining so, it receives nourishment from the uninjured nerve *a*, and if degenerated becomes regenerated and takes on its normal

PLATE III.—NUMBER 1.

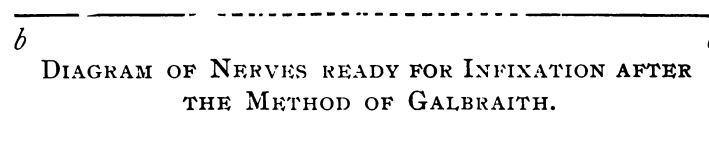


DIAGRAM OF NERVES READY FOR INFIXATION AFTER THE METHOD OF GALBRAITH.

functions, and the result is that the nerve impressions of central *b* are transmitted through a portion of *a* until they reach the peripheral end of *b* and from there they are carried to the extreme filaments of the nerve.

The patient I am about to bring before you was admitted to the Protestant Hospital the latter part of December, 1894, for tubercular adenitis involving the axillary glands. There was a large tumor in the left axillary region, nearly the size of my fist, extending to the humeral insertion of the pectoralis major muscle, backward to the serratus magnus and filling the entire axillary space. He was operated on December 28th, 1894, and the tumor carefully dissected out, exposing the brachial artery, the axillary vein and the brachial plexus of nerves. In spite of all the care possible, we were obliged, during the operation, to cut the circumflex nerve and also the posterior thoracic, which we sutured with catgut. In addition to these we found a large muscular branch which supplied the inner portion of the arm which was given off of the posterior cord more than an inch above the circumflex and was entangled in the tumor to such an extent that it was necessary to excise at least two inches of it; the central end of this nerve was infixed into the central end of the

PLATE III.—NUMBER 2.

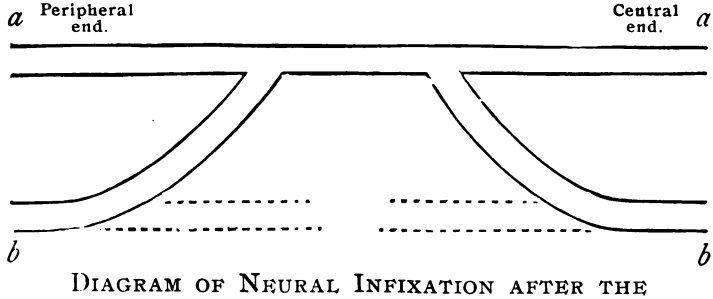


DIAGRAM OF NEURAL INFIXATION AFTER THE METHOD OF GALBRAITH.

circumflex, whilst the peripheral end was also carefully infixed with catgut suture into the central end of the circumflex. The cavity was packed with iodoform gauze and the dressing completed in the ordinary aseptic manner.

This operation was witnessed by quite a number of the local physicians as well as a large number of students, and no small amount of conjecture was had as to its final results. The next day I found there was paralysis of the deltoid muscle, together with anesthesia and paralysis of the inner portion of the arm, extending down the ulnar side to the wrist. There was also anesthesia found over the territory supplied by the posterior thoracic nerve. For more than a week the nerves were plainly visible in the axillary space, when the dressings were changed, but were gradually covered by granulation tissue and in about two weeks the functions of the several nerves began to return. He was discharged from the hospital in three weeks and allowed to go home and return for dressing, and was finally discharged in eight weeks, and in nine weeks returned to his occupation as bartender.

I have requested him to be present to-day, which he has kindly consented to do, and present himself to the members of this Society for such examination as they may care to make. [Patient, who is now entirely well, was then exhibited to the members of the Society.]

I am well aware that the time elapsing between the operation and recovery is much shorter than that required in the experiments of Professors Howell and Huber. At the same time there is no question as to the injury of the nerves as above stated, in this patient, whilst the time required for recovery corresponds with that in the cases of Drs. Galbraith and Means.

I shall not attempt, at this time at least, to explain from a physiological standpoint the regenerative pro-

cess which took place, but will simply offer the case as a clinical fact, showing the results of nerve suturing and neural infixation. I feel justified, however, in saying that if future work in this direction proves as successful as the scanty experience of the past, it will enable the surgeon to relieve many injuries to the nerves which heretofore have remained permanent.

DISCUSSION.

DR. HUBER, Ann Arbor, Mich.:

I thank the Society very much for the pleasure of being here with you and listening to the interesting papers read by you. I am very much pleased to hear this important paper of Dr. Reed's. Of course, you all know I have never operated upon the human nerves; but I have had the privilege during the last few years of doing a large number of operations experimentally along this line, and have obtained some results which to me have been very interesting. As has already been pointed out, the peripheral end of a divided nerve always degenerates. That I think is the rule without an exception. A few years ago Dr. W. H. Howell (now of Johns Hopkins) and I simply ligated the nerve very tightly with silk thread: On loosening the thread it was found that the nerve fibres had been cut, the perineural and epneurial sheaths not. Electrical stimulation showed that the cut fibres would not conduct impulses. In another series of experiments we took a bent glass tube, just large enough to permit us to pass hot water through it without trouble. This was passed around a nerve trunk; on passing the water through it, we coagulated less than an eighth of an inch of the nerve; in both cases the peripheral end degenerated. I think both of these experiments would give us the best possible means of regeneration without peripheral degeneration, if such a thing were possible. It is now believed that the axis cylinder is simply the process of a nerve cell found in the spinal cord or in the posterior root ganglia. If this axis cylinder is cut from its nutritive center, the severed end

breaks down. I don't remember whether Dr. Reed thinks it would degenerate or not, but I believe it invariably degenerates, and if it is regenerated it has to regenerate from the central end. A large number of researches have been made in this direction, and almost without exception the conclusion now is that the peripheral end breaks down. Now, it has also been found, as Dr. Reed has pointed out and as all operators and experimenters will agree, that the degenerated peripheral end may again regenerate, and in almost every instance does regenerate, no matter whether the operation is done just after the injury, or even several months after the injury to the nerve. But it has also been found, that in order to have this peripheral end regenerated we must provide means for down-growing axis cylinders of the central end to reach the peripheral stump, and if possible grow down in the peripheral stump. The nerve may be simply cut, and with catgut you simply suture the nerve together. The regeneration is very simple; only a small amount of connective tissue is formed between the divided ends and the nerve readily regenerates. In such cases the peripheral end has nothing to do with the development of the axis cylinder, which always comes from the central end. Filaments grow down in the old sheaths and reach the periphery. In cases where large segments are lost, two or three inches of a nerve are destroyed, possibly from getting the extremity between cog-wheels, or a gunshot wound; or after suppuration and inflammation following an ordinary injury, you often can not bring the ends together. One method of overcoming such a difficulty has already been mentioned by Dr. Reed. I have not tried infixation experimentally. It would seem to be possible from the clinical cases reported, and I think the operation would be a very easy one to make.

Of the operations I have tried experimentally the following may be mentioned: First, nerve transplantation. The experiments were made upon dogs. Small pieces of a cat's sciatic, 2 to 5 inches in length, were transplanted between the resected ends of a dog's ulnar, and almost without exception the central down-growing axis cylinders grew through the degenerated sheaths of the interposed segment and through the peripheral nerve stump, and

after 120 to 142 days the nerve supplied by the peripheral end regained its function, and the muscles would respond to electric stimulation, and the use of the limb would seem to be as good as before the resection.

I further tried the suggestion of Vanlair, that of using a decalcified bone tube, that is, inserting the ends of the divided nerve into the bone tube. But these experiments were not nearly so successful. In one or two the result was fairly good, but not nearly so good as by the first method mentioned. Then I tried a few experiments which seemed to prove more successful. I wound about 10 to 12 catgut threads with two very fine threads, leaving the ends of the fine catgut threads long, and suturing this catgut bundle to the central and to the peripheral end of the cut nerve. The chromatized catgut dissolves slowly, and I have found it some twenty days after implantation. The connective tissue organizes about the catgut, and the central axis cylinders pass down these paths of less resistance left by the absorbed catgut, and get to the peripheral end. In a number of these experiments the results were fairly good.

Still another method I wish to speak of, is that of making a nerve flap. This method is referred to in some of our text-books, but seems to me not to be worthy of such consideration. It consists in splitting up the nerve for a distance, making a flap, and then suturing the downward flap to the peripheral stump. It was believed that the nerve flap would not degenerate and the nerve impulses would be carried along the flap to the peripheral end. The flap is bent over, and instead of the axis cylinders growing down to the peripheral end, they grow out and form a bulb. The peripheral end degenerates, as also does the flap. This method, I should think, ought not to be recommended.

Now, from my experimental work, I would suggest that the operation of nerve implantation be selected. In the operation suggested by Dr. Reed and used by him, no doubt the peripheral end would degenerate. I do not think union in any way would prevent that. If union takes place, the axis cylinders may get into the peripheral end and regenerate the peripheral end of the infixed stump. As to the time required for regeneration to take place, that depends on the distance the axis

cylinders have to grow down, and the care with which the suture is made. In Dr. Reed's case, from the cut end to the distribution of the nerve in the deltoid, there would not be more than four or five inches, which is a short distance compared to injured nerves in the upper arm or leg, and of course the longer the peripheral end the longer the time before regeneration takes place.

THE PROGNOSIS OF PARALYSIS.

PHILIP ZENNER, A. M., M. D., CINCINNATI,

Clinical Lecturer on Diseases of the Nervous System in the Medical College of Ohio.

It was my intention to speak of the causes and course of the common forms of paralysis of cerebral, spinal and peripheral origin, but, as that would necessarily take me beyond the limits of a brief paper, I have concluded to consider only some cerebral paralyses, especially the results of apoplectic seizures. I shall begin with an attempted explanation of the occurrence of symptoms.

We may speak of direct and indirect symptoms of cerebral lesions (in this paper I speak only of paralytic manifestations). The direct symptoms are the result of destruction, or at least damage, of brain tissue. They are the expression of loss of function of the affected part. The indirect symptoms are the result of compression, or other involvement, of parts of the brain at a distance from the lesion.

As an illustration let us take a case of brain tumor, one of the left occipital lobe. The direct symptom will be left hemianopsia, for this lobe is in relation with the left half of both retinæ, and therefore its destruction causes blindness in the left half of the field of vision. The tumor also produces increased intracranial pressure, and as the result of this we may have various indirect symptoms, at least indirect as far as the tumor is concerned. For instance, the olfactory nerves may be

paralyzed through being compressed between the distended brain and unyielding brain. Other cranial nerves may be compressed in the same way, and even the pyramidal tracts, with resulting hemiplegia.

To an even greater extent can we distinguish between direct and indirect symptoms in the condition in which we are now interested, paralysis of apoplectic origin; and, furthermore, while the indirect symptoms of brain tumor, though not directly produced by it, may nevertheless be permanent, those of an apoplexy are always transient.

Now let us take an ordinary case of apoplexy. The lesion, we will suppose, is a cerebral hemorrhage. An artery has suddenly ruptured, and a stream of blood pours into the brain substance. Let us consider for a moment the actual conditions presented. The brain substance is semi-solid, normally under a slight pressure, equal to that of a column of water ten millimetres in height. Now this soft substance, standing under a slight pressure, is suddenly subjected to a pressure (this will vary according to the size and location of the vessel and the kind of rent in it) we will say equal to that of a column of mercury 150 millimetres in height. This severe blow, as we may term it, is felt not only at the seat of the lesion, but throughout a large part of the brain, and for the time being robs it of its functions. Naturally, the intensity of the paralysis or loss of function is greatest at the seat of lesion, becoming less the greater the distance from it, whilst the restoration of lost function occurs in inverse order, the part at a great distance from the lesion very soon regaining, the part destroyed losing, its functions altogether.

Let us take a few illustrations. First a hemorrhage into the corpus striatum. If the lesion be a considerable one we may expect, first, unconsciousness; second, complete hemiplegia, perhaps in the beginning paralysis

of both sides of the body. These are the expression of an extensive brain paralysis. But some of the manifestations of the latter are concealed by the unconsciousness, such as loss of sensation on one side of the body, hemianopsia and aphasia. The latter symptoms may remain when consciousness begins to dawn, but are likely to be overlooked because not sought for at that time. This is especially true of hemianopsia. All the paralytic manifestations will now begin to disappear, leaving finally only a degree of motor paralysis, the extent of the latter depending upon how far the lesion has injured the pyramidal strands.

If a lesion of the same extent occur in another part of the brain it will produce the same array of symptoms in the beginning, but all will soon disappear excepting those expressive of the destruction of brain tissue. Thus if the hemorrhage is into the occipital lobe the loss of consciousness, motor paralysis and other symptoms will be present in the beginning, and subsequently all disappear but hemianopsia.

What has hitherto been said presupposes that the hemorrhage or lesion is always of the same size. But hemorrhages vary much in size, sometimes being so large as to produce a rapidly fatal termination, again so small and so slow in onset that they cause almost no indirect symptoms.

Many factors modify the extent of hemorrhage. The most important is the size of the bleeding vessel. Another is the character of the rent in the vessel, which may be so large as to permit the whole pressure within the blood-vessel to be brought upon the brain substance, or so small that the blood will escape very slowly and the resulting pressure on the brain be correspondingly slight. The location of the bleeding vessel may also have a modifying effect. Thus the vessels entering the anterior perforate space, which supply the corpora

striata, etc., have a higher blood pressure than vessels of the same size passing from the pia into the convexity, on account of the tortuous course the blood must take before reaching the latter. For that reason a hemorrhage into the convexity is likely to be smaller than one into the corpus striatum.

Recognizing these various factors in the modification of hemorrhages, and the manner of production of symptoms, we can now readily formulate our ideas of the prognosis of the paralysis produced. I am not now considering the question of life and death, but only the prognosis of the paralysis where a fatal termination does not ensue.

Firstly, we must say the more rapid the onset and extensive the symptoms, the larger are the number of indirect symptoms present, and therefore the greater the improvement which must subsequently take place. I must again recall that the immediate symptoms are dependent as much upon the suddenness as the size of the lesion, and, therefore, the question of indirect symptoms, and, in so far, favorable prognosis, will depend even more upon the rapid onset of the symptoms than upon their extent. It is another matter to determine what are the direct, what the indirect, symptoms, or, in other words, which will disappear, which remain permanently. At the time of an apoplectic stroke it is usually impossible to answer this question, but after consciousness has returned an approximately correct opinion may be formed by noting which paralytic symptoms disappear soonest.

Secondly, and this is a corollary of the first proposition, where the symptoms come on slowly, and at the same time are not very severe, it is probable that they are mainly direct symptoms, and, therefore, will to a large extent be permanent.

To illustrate these statements we will take two cases of hemiplegia of equal extent, the one ushered in with,

the other without, loss of consciousness. Now in the first case we know there was a "blow," that there are indirect symptoms; in fact, all the symptoms may be indirect, and, therefore, disappear. In the second, as there was no loss of consciousness, there was, at least, no severe blow, therefore few indirect symptoms, and the greater likelihood that the symptoms are direct ones and will be permanent. As to the latter we must be particularly influenced by noting whether the paralysis set in slowly or the contrary. For even if there be no loss of consciousness a hemiplegia of very sudden onset may still be mainly an indirect symptom.

In the prognosis of a motor paralysis we may, furthermore, be often assisted by the condition of the tendon reflexes, though some days or weeks must elapse before their aid can be obtained. In case of injury of the pyramidal strands, an injury causing permanent paralysis, the tendon reflexes usually become excessive. Some days after the occurrence of a hemiplegia we begin to examine the condition of these reflexes. If we find the ankle-clonus, and great excess of the knee-jerk, we feel confident that, to a greater or less extent, the paralysis will remain permanently. But the absence of these symptoms has not equal diagnostic value, for permanent paralysis is sometimes found without exaggerated tendon reflexes.

I have spoken hitherto only of cerebral hemorrhage, but more than half the cases of "stroke" — sudden paralysis — are due to embolism or thrombosis. In the latter the explanation of symptoms is not the same as in hemorrhage, but, nevertheless, there is the same occurrence of direct and indirect symptoms, and what has been said on the subject of prognosis will apply equally to all apoplectic cases.

REMITTENT MIASMATIC FEVER,

JAMES MACREADY, M. D., MONROE.

It is my purpose in this paper to discuss a type of fever with which the pioneer practitioners and their immediate successors in Southern Ohio, especially in the Miami Valley, were familiar from frequent observation of its phenomena, but which during the past three decades has almost wholly disappeared, viz., remittent fever of miasmatic or paludal origin.

The history of febrile diseases prevalent in the Miami Valley during the first six decades of the present century discloses the existence of two types of paludal fever, endemic in many circumscribed areas of greater or less extent, which the early settlers and their immediate descendants expected to recur yearly with the advent of warm weather, and continue until arrested by the frosts of autumn ; one being intermittent and the other continuous, with a marked tendency to a daily remission. The latter from its protracted and often irregular course, with manifest debility, close resemblance to typhus, and frequent fatal results, was often denominated typhus fever by the early practitioners.

A tract of low alluvial land, through which the boundary line between Butler and Warren counties passes, and lying north, east and west of the village of Monroe in the first-named county, was the habitat of all types of miasmatic fevers, intemittent, remittent, and occasionally the pernicious type. Drainage of wet parts and the

subjection of almost the entire area to cultivation, wrought a change which for a series of years almost banished the endemic fevers, or rendered them milder.

During the year that closed with the frosts and light freezing weather of November, 1894, the areas that were subjected to thorough drainage and put under cultivation within the five years immediately preceding, have been exempt from malarial poisoning. Formerly these tracts furnished most of my malarial patients. The past summer and autumn developed these in localities that had been long free from malarial poisoning, and that had been noted because of freedom from febrile diseases of all kinds.

The first week of July last marks the beginning of an endemic manifestation of malarial disease which rivals in intensity of poisoning any period of pioneer days. It began with a series of diarrheas, which were protracted in duration and accompanied by an intermittent fever of the quotidian variety, the paroxysms of which continued to recur until after the patient was thoroughly cinchonized.

In the last week of this month, cases presenting entirely different phenomena began to appear in the village of Monroe, its immediate vicinity, and along the line of a sluggish stream which passes through and drains the lowlands west of the village. The hot, dry weather of the past summer caused this stream to become dry where it passes through the bottom land, which I am informed never occurred during any previous summer or autumn.

The inception of the attack in these latter cases was marked by a short and usually slight prodromal period, with headache, tongue furred, broad and flabby; slight nausea and epigastric tenderness; stiffness and soreness of the lateral and post-cervical muscles; aching and soreness across the shoulders and lumbar region, while a sense of weariness was complained of. These symp-

toms, which invariably manifested themselves prior to the advent of the febrile movement, were accompanied by a *marked paleness* of the countenance and exposed mucous surfaces, denoting a diminution in number of the red corpuscles.

The prodromal stage rarely lasted longer than forty-eight hours, and was succeeded by an ill-defined cold stage — not a rigor, but a feeling of chilliness, languor, debility; some cerebral oppression, and slight gastric derangement, followed by the development of a febrile movement, which quickly reached its acme of 104° or 105°. The skin became hot and harshly dry to the touch; the pulse increased in force and frequency; the face became flushed; headache, throbbing and severe; and the lumbar pains increased in severity. The bowels were constipated, in some cases obstinately so; when opened by mercurial or saline cathartics the dejecta were of a brownish color, showing the presence of bile. Some of the cases lapsed into a diarrhea, with dejecta having a color and odor denoting a surplus of bile. The putrescent odor which denotes a suspension of biliary and pancreatic secretion was never present except in the latter stages of some of the protracted cases, where some form of hepatitis was developed. A few cases vomited yellowish and brownish-colored bile.

The duration of the febrile exacerbation varied greatly in different cases, and often at different periods of the same case. The first exacerbation invariably appeared either in the afternoon or evening, and continued with unabated severity until the forenoon of the following day, when, in most cases, a remission occurred. In some of the cases the remission did not appear until the afternoon, when the temperature would decline two, three or four degrees. The duration of the remission varied greatly in different cases, lasting two, three or four hours, to be followed by an exacerbation, often of equal

severity to that of the previous day. In the mild cases, the exacerbations gradually decreased in severity, terminating by lysis in from six to fourteen days. Some of the severe cases showed no remission for four days, which was then induced by the cold sponge-bath, and cold compresses applied to the abdomen and the anterior and lateral parts of the thorax. Perspiration seldom appeared during the remission, unless the normal was reached.

The severe cases were frequently protracted in duration. One case was characterized by two well-marked exacerbations and remissions, each twenty-four hours, for four successive days, one exacerbation beginning about noon and the other soon after midnight. Each day forty grains of quinine sulphate were exhibited, with two drachms of fluid extract ergot to prevent congestion of the auditory apparatus. During twelve hours of the fourth day, forty drops of Fowler's solution were given. The exacerbation did not recur again until after the expiration of thirty-six hours, after which another period of thirty-six hours passed without fever, followed by a slight elevation of temperature, with no subsequent recurrence.

Notwithstanding the administration of large doses of quinine between each exacerbation, cinchonism was not manifested by the usual subjective symptoms, which I belive I am justified in attributing to the antagonism of the ergot.

Fifty-one cases of well-marked remittent fever came under my observation from July to November. Four deaths resulted: one during the fourth week of the attack from hepatitis, with jaundice inducing a secondary toxemia; one in the fifth week from pyemia following crural phlebitis and suppurative inflammation in the left iliac region. The third death occurred during the fourth week, and was caused by meningitis. The fourth was that of a child aged four years, who became free from

fever by the end of the second week, and maintained a normal temperature for seven days, when she became the subject of a pneumonia, which terminated by resolution at the end of ten days; five days after the pneumonic action had ceased, she was attacked by a chill, and soon passed into a condition of collapse, followed by death. In this case, the liver became enormously enlarged, the free margin descending to the umbilicus.

The question may be asked, why should a region so long free from malarial poisoning, except the mildest and most tractable forms of the disease, become again a source of the severe types? I answer, that the intense, protracted heat, and the long-continued absence of rain in the summer and autumn, were important factors. The agency of these dried up the stream referred to as causing the cases west of the village. Although this stream contained no water, its sandy and in many places alluvial bottom was constantly moist from water brought to the surface by capillary attraction, and thus made an excellent culture-bed for the microbe of the disease, the "corpuscle of Laveran," the plasmodium. The germs dwell in the soil, and are developed by heat and moisture. Surfaces containing them in abundance had been exposed by the evaporation of the water usually covering the bottom of the stream. The region through which it passes and drains had, part of it, in former years been wet and swampy, and had then been visited annually by both the intermittent and remittent types of malarial fever; and though never entirely free from malarial poisoning, the attacks of late years were mild and easily controlled by treatment.

When the Cleveland, Cincinnati, Chicago and St. Louis Railway, which passes through this region, was under construction, the laborers engaged on the work in the low grounds, who lived in shanties adjacent to the road, were frequently attacked by malarial disease. South of

the low grounds, the land is elevated to a degree that necessitated deep excavations for the road-bed. This elevated region had long been free from miasmatic fevers. The laborers engaged on the work and the adjacent inhabitants became the subjects of malarial attacks, the latter for two or three years after the work was completed. The germs of the disease which were brought to the surface by the work of excavation multiplied by the aid of heat and moisture, and soon became diffused through the atmosphere of the immediate neighborhood. Soils that have once been the producers of germs that induce miasmatic fevers, probably never become entirely free from the cause, except those parts which are repeatedly exposed, in the process of crop cultivation, to the actinic rays of the sun. In such regions, deep excavations, extensive in area, have been contaminators of the atmosphere, with malarial manifestations among adjacent residents.

In the low lands adjacent to the stream referred to, fourteen well-marked cases of remittent miasmatic fever occurred. In the village of Monroe and its immediate vicinity, thirty-seven cases came under my observation. Here I believe I am justified in attributing the cause to a poisoning of the atmosphere by miasm emanating from ponds close to the village, five in all, which were originally constructed for carp culture.

The land on which the village is located is much elevated above the surrounding lowlands. At some time in a prehistoric period, from geological indications, the latter were probably covered by water. The village has natural drainage by the aid of depressions in the hillsides. The ponds were constructed by the erection of dams across these depressions or ravines. They become filled with water by *drainage* from the *village* during the rainy season. Filth of various kinds is washed into them from the streets, stables and privies. Three

of them are used to procure ice, which is sold to dealers in meat, dairymen, and others. When filled with water they are probably harmless, so far as atmospheric poisoning is concerned, and become dangerous only when their filth-laden bottoms are exposed by evaporation of the water during the latter part of summer and the autumnal months, when they become excellent culture-beds for breeding the microbes of miasmatic fever.

Soon after the beginning of the hot weather of the summer of 1894, the water in these ponds began to evaporate rapidly. In the month of August fevers of a mild remittent type began to appear. September brought a larger number of a severe grade, but all having the same general symptoms. With these cases, there occurred in August one case of enteric fever, one in September, two in October, and three in November. During those months, fifty-one cases of well-marked remittent miasmatic fever came under my observation.

The physician who has had the opportunity of observing these cases from the inception of the attack, who has studied them closely, and has made an accurate record of each case at the bedside, can scarcely be led into error as to the nature of the disease. The only ailment liable to cause confusion in arriving at a differential diagnosis is enteric fever; and then a doubt could occur only because of the protracted febrile movement, and its resistance to quinia. Notwithstanding these, enteric must be excluded because of the absence of its cyclical course, tendency to diarrhea and other intestinal lesions; its peculiar eruption, enlargement of the spleen during the first and second week, and absence of the mental hebetude that characterizes most cases of enteric, except one case in the fourth week when meningitis with tetanic manifestations was developed, followed by death.

The beginning of the febrile movement was abrupt, and the elevation of the temperature during the first ex-

acerbation equal to that of any subsequent period of its course, and the remissions irregular as to the time of the daily occurrence. The febrile movement of enteric or typhoid is developed by a gradual effervescence, which reaches its acme by the end of the fifth or seventh day, when the fastigium begins, during which there is a marked tendency to a daily fall of the temperature of from one to two degrees between the hours of seven and nine o'clock in the morning, followed by a gradual rise until the acme of the previous day is reached in the evening. This variation of the morning and evening heat continues until the seventeenth, twenty-first, or twenty-eighth day is passed, when the period of defervescence begins.

Physicians sometimes conclude that because a fever having a continued course is not arrested in its movement by the exhibition of quinia, it is, therefore, not of miasmatic or paludal origin, but is enteric or typhoid. This error results from defective differentiation and failure to administer the antiperiodic at the proper time and in sufficient quantity. It is almost universally admitted that difficulties attend the treatment of remittent that do not attach to intermittent fever in the administration of the specific remedy. He who expects to abort a remittent fever of paludal origin with the same certainty that attends the exhibition of quinia to the intermittent, is sure to meet with disappointment, and may thus be led to easily doubt the correctness of a diagnosis that is well-founded.

The reddish-brown, often decidedly red, color of the urine of the first days of paludal remittent fever, is an aid in differentiating this from enteric fever that should not be overlooked, the cause of which will be stated in a brief notice of the prodromal anemia to which I referred in the enumeration of the initial symptoms of the cases treated during the past summer and autumn.

I had the opportunity of studying eleven cases during the prefebrile stage in houses where I was in attendance on cases previously attacked. My attention was directed to each, and an examination was made, some two days and others but one day before the thermometer disclosed the existence of fever, because of headache, pain in the lumbar region, soreness of the cervical muscles, with a general feeling of malaise and exhaustion that impelled the patient to seek advice. In each case I observed the peculiar pallor, in a marked degree, that denotes diminution in the number of red corpuscles. This pallor became more notable after the subsidence of the first febrile exacerbation. During the excitement incident to the increased cardiac activity of the exacerbation, the face became flushed. As this flushing disappeared with the occurrence of the remission, a yellowish tinge was left on the face, while the sclerotica remained clear, except in a few of the protracted cases in the latter stages, when a jaundiced condition appeared, associated with some form of hepatitis.

When the febrile movement became fully inaugurated, exsanguination was rapid. Many of the cases had the appearance of having been profusely bled.

If the urine was examined soon after the first febrile exacerbation, it was found to have assumed a reddish-brown color, sometimes a deep red tinge, imparted by the presence of pigments derived from the destruction of the colored corpuscles, or from hemoglobin thus liberated and excreted through the kidneys. The process of exsanguination continued until the febrile movement ceased; consequently the protracted cases became excessively pallid.

Some of the severe cases complained of dyspnœa, without the existence of pulmonary or cardiac lesions to explain its presence. The cause was probably a diminished oxygen-carrying capacity of the blood.

The rapid changes in the composition of the blood which accompanies the development of miasmatic fevers are now known to be caused by the "corpuscle" of Laveran, the plasmodium—a protozoön—gaining admission to the vascular system, where the parasite develops and continues its cyclical existence at the expense of the circulating fluid, especially the red globules, to which it becomes attached and soon destroys. Some American writers have fallen into the error of supposing that the parasite enters the interior of the red corpuscle, and thus does its work of destruction. The mistake originated with Dr. Richard, and was promulgated by him in a communication to the Academy of Sciences in 1882, and doubtless resulted from an optical delusion. One year later, in the *Revue Scientifique*, he acknowledged his position to be erroneous, and says: "They are attached to the red corpuscles, at the expense of which they are nourished."

The investigations of Laveran, and since him of others who have corroborated his discoveries, show that the different types of miasmatic fever are the result of one cause—the plasmodium. The frequent presence of this organism in the blood of those suffering from the various types of the disease, and its disappearance after the cessation of the febrile movement, admits of the conclusion that it is a causative factor, and probably gains admission to the organism during the stage of sporation, by the inhalation of an atmosphere in which the spores of the parasite are floating, or by drinking water obtained from an infected source. Having gained an entrance, it begins its cyclical existence, which continues until it is destroyed or expelled by the phagocytic action of the polynucleated leucocytes, or by the combined action of these ever-watchful guardians with appropriate treatment, unless the life of the host is sacrificed in the struggle.

Just why in one case the parasite causes the development of intermittent action, and in another remittent, is not easily explained. We do not yet know enough of the life history of the parasite to enable us to satisfactorily explain this. Although four forms of the parasite have been described by Laveran, which are evidently different phases and represent as many periods in its evolution, we know nothing of the time required to complete each stage of the metamorphosis. It seems that the cystic rod-like crescents are the active destroyers of the red blood-corpuscles, but how the pigment found in the blood, spleen, liver and other parts is formed, and whether this is toxic, has not that I am aware been shown. It seems to be a plausible conclusion that the apparent dissimilarity in the different types and varieties of the same type is a result of an inequality in the forces which promote development of the parasite, and those which antagonize its evolution in the vascular system. It is probable that in the intermittent type and its varieties the numbers of the parasite are not so great, and the forces—an unknown quantity—which promote its various metamorphoses not so active and persistent as in the remittent, and hence are more effectively attacked, retarded and controlled in their growth by the action of the phagocytes, with the induction of the intermittent type. In the remittent type, the plasmodium probably enters the organism of the host in greater numbers, and its evolutionary forces are more active and persistent, which for a variable period enables it to gain the mastery.

During the exacerbation the process of leucocytosis is held in abeyance, but regains its activity during the remission, when phagocytosis becomes active for the destruction of the invaders; hence many cases of remittent fever, left untreated by specific remedies, lapse into the intermittent; while others terminate by lysis in from

six to fourteen days, with no other remedial aid than the forces of nature, the plasmodium gradually becoming attenuated, and finally ceasing to exercise its reproductive powers.

Mild cases, whether treated efficiently or not, almost always terminate in recovery, while the severe ones, if not skillfully handled, develop pathological changes in the liver, spleen, kidneys and brain, that protract the duration, and sometimes induce a fatal result.

The general principles which are applicable to the treatment of remittent fever of miasmatic origin are:

First, eliminative measures, as purgatives and diuretics.

Second, measures that moderate the temperature, shorten the exacerbation, hasten and prolong the remission.

Third, the administration of the abortive agent, quinia.

Treatment should *always* be commenced by the administration of a purgative, which clears the alimentary canal of its contents, including fecal matter and the toxic products of indigestion, the absorption of which impairs the resisting power of the patient's organism and the vital energy of its cells, thus lessening its ability to defend itself against the parasitic action of malaria. This, in my hands, has been most easily accomplished by the administration of three five-grain doses of calomel, at intervals of two hours, followed three hours after the last dose with a saline cathartic, to secure thorough washing out of the whole length of the alimentary canal.

The second indication is met by the application of the cold sponge-bath soon after the beginning of the febrile exacerbation. This operation must be continued not less than twenty minutes, to be followed by the application of compresses, wet with water at a temperature of 70°, to the abdomen and the anterior and lateral parts of

the thorax. These must be changed every fifteen minutes until the thermometer placed under the tongue shows the temperature to be falling and the remission is fully established. This procedure adds greatly to the comfort of the patient. It increases the vital energy of the cells in their efforts to destroy the parasite and eliminate its toxic products.

The investigations of Winternitz, published in 1893 (Blätter für Klin. Hydrotherapie),* show the number of leucocytes is "increased two or three times above the normal by cold applications." He thus explains the favorable influence of baths in diseases with high temperature. There is a natural tendency for the exacerbation to terminate in a remission approaching the normal which is facilitated and accelerated by the persistent application of the bath.

Frequent observation must be made with the thermometer to ascertain the "precious time" when the antiperiodic shall be administered, which will be as soon as the temperature declines to the normal, or near it, when twenty grains of sulphate quinia must be administered, either as one dose, or two equal doses two hours apart. The aim should be to saturate the blood current as rapidly as possible with the remedy. Clinical experience shows this method to be effective in aborting the course of the disease. After the subsidence of the exacerbation, the temperature must be taken frequently to enable the physician to know when the next exacerbation begins, when it must be promptly attacked by the bath, followed by quinia as soon as the remission appears. Usually when thus treated, not more than four exacerbations will occur, each of which gradually becomes lighter, and finally ceases to recur.

Sometimes irritability of the stomach prevents prompt exhibition of quinia, when it can only be administered either by the hypodermatic method or per rectum.

* *American Med. Surg. Bulletin*, Jan. 15th, 1894.

The cold bath can be effective only when the patient is handled by a nurse trained in the use of the thermometer, and who will not be influenced by the prejudices of meddlesome friends. Unless it is intelligently applied by those trained in its use, the physician will often fail to obtain expected results, with the development of pathological changes which result from repeated and prolonged exacerbations, with a protracted duration of from four to five weeks, perhaps a fatal result.

The administration of quinia in four- and five-grain doses at intervals of three hours, extending over a period of twenty-four hours, produces no favorable result. Cases thus treated run precisely the same course as those which receive no treatment, because the remedy is eliminated by the kidneys so rapidly that it fails to exert its toxic effect on the parasite. Saturation of the blood must be rapidly induced to obtain curative results. This end can be attained only by the administration of large doses, in a condition that will insure rapid absorption. The subjective symptoms of cinchonism — deafness and ringing in the ears — can be induced as readily by the administration of four-grain doses every third hour until eight doses are taken, as when the whole thirty-two grains are taken in three doses of equal size one hour apart. When administered by the former method, my experience shows that no curative result follows, which is explained by the rapid elimination. By the latter method a toxic effect is exerted on the plasmodium. The unpleasant effects of quinia on the auditory apparatus, in many cases, can be prevented by the administration of ergot in full doses.

SPONDYLITIS VS. SCOLIOSIS.

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Possibly I do not overestimate the facts when the statement is made that 50 per cent. of practitioners do not make a proper distinction between Pott's disease and lateral curvature. Pott's disease is a tubercular disease of the vertebral column, and is characterized by night-cries, rigid spine, slight fever, fretfulness, pain, sometimes quite severe over the abdomen or chest, destruction of bone, and resultant kyphose or hump, with an antecedent history of a slight injury or fall. Lateral curvature is a lateral deviation of the vertebral column with no other associated symptoms, as a rule, except atrophy of the muscles.

In order that a proper differentiation may be made, as well as that the true line of treatment may be pointed out, these conditions will be considered comparatively. Both are distinctively diseases of childhood, generally under fourteen years. Lateral curvature is most frequent from six to ten. Pott's disease is most frequent from three to seven. Sex has nothing to do with the production of Pott's disease, but in lateral curvature about 80 per cent. are females.

PATHOLOGY.

Judson (*Med. Record*, Nov. 1st, 1890) may be quoted as follows:

"The method of accounting for the rotation attending lateral curvature of the spine, which I proposed about fifteen years ago, occurred to me when preparing a lecture on lateral curvature for the Women's Medical College in New York City. It seemed to me then, and I have seen no reason to change my opinion, that rotation takes place because the anterior part of the column, the bodies, are free to move laterally in the cavity of the chest and abdomen, while the posterior part of the column, the processes, are prevented from the same degree of lateral displacement by being entangled in the posterior parietes, composed of ribs, muscles, and fasciæ.

"The lateral curvature is less in the processes than in the bodies, a very important point in an effort to appreciate the extent of the deformity, the gravity of the case. It follows logically, and is also true in practice, that an earlier diagnosis can be made by looking for rotation than for curvature.

"In the absence of accepted views of the etiology of lateral curvature I assume that the deformity is an expression of inability on the part of the muscles (very likely of nervous origin) to hold the trunk erect."

Sayre (R. H.), *N. Y. Med. Journal*, March, 1893, says: "I feel convinced that many of the lateral curvatures are due to a primary malnutrition which expresses itself in unequal growth of the bodies of the vertebræ instead of finding its expression in the lower extremities, as is usually the case."

In other cases anterior poliomyelitis lays the starting-point for lateral curvature.

A diagnosis in 90 per cent. of cases is not difficult, and indeed I may say that a mistake even in the early history is hardly excusable. In certain cases, however, a diagnosis is quite difficult and almost impossible,

While the curve of spondylitis is generally antero-posterior, cases are seen in which the curve described is lateral. The same may be said of scoliosis. I saw a case going the rounds of the New York orthopedic clinics regarding which there was a difference of opinion, one clinician claiming it was a case of scoliosis, and another a case of spondylitis, and I doubt whether these opinions were ever harmonized.

A case now under treatment, while a true scoliosis, has no lateral curvature, but has instead a marked acute lordosis with a gradual posterior dorsal curve.

A case of lateral curvature came to me in the third stage, or stage of complete ankylosis of the spine, and a surgeon who is doing some orthopedic work had put this unfortunate up in a plaster-of-Paris jacket and kept him there for six months without cutting it off. When the jacket was removed complete ankylosis was found.

The treatment for Pott's disease is just the opposite to that of lateral curvature. In Pott's, exercise, or motion of the vertebral column, is to be avoided, and in lateral curvature gymnastics is the first principle of treatment.

The permanent support must be removed during exercise and reapplied while the patient is suspended. If a plaster-of-Paris jacket is selected as the permanent support, it should be made to lace, so it can be removed when desired.

Dr. R. H. Sayre reports two boys with rotary lateral curvature, who showed a remarkable increase in stature in the course of a few weeks of treatment by extension with the application of a plaster-of-Paris jacket. One boy increased two inches and a quarter in height in three weeks, the jacket only increasing the height about an eighth of an inch.

I treated a case of spondylitis some years ago in an adult, in which suspension gradually carried out, with

plaster-of-Paris support, increased the stature of the patient two inches.

For lateral curvature a course of systematic gymnastics should be carried out daily, with forcible correction two or three times per week. The calisthenics as carried out at public schools, the Delsarte system and other systems of systematic gymnastics are quite beneficial, for such exercise not only tones up the affected muscles but results in a general improvement in health.

The treatment for lateral curvature is subdivided as follows:

1. Postural.
2. Gymnastic.
3. Mechanical.

Under the first head causes are to be removed, change made in occupation, style of clothing, and general habits are to be corrected.

DEFINITIONS.

Scoliosis.

Permanent lateral deviation of the spinal column, or part of it, from the natural physiological direction.

Synonyms:

Lateral curvature.
Lateral distortion.
Scoliosis.
Deviation laterale de la taille.

Spondylitis.

Spondylitis is a tubercular disease of the vertebral bodies or intervertebral disks, leading to their partial or complete destruction.

Synonyms:

1. Pott's disease.
2. Vertebral tuberculosis.
3. Anteroposterior curvature.
4. Angular curvature.
5. Kyphosis (Greek).
6. Mal de Pott (French). Spitzbuckel (German).

ETIOLOGY.

Scoliosis.	*Spondylitis.*
Heredity has little to do with it. Varieties : Habitual. Static. Professional. Pathological. Rachitical. Paralytic.	Tubercular history in 50 per cent. of cases. Slight injury from a fall.

SYMPTOMS.

Scoliosis.	*Spondylitis.*
A. No constitutional disturbance.	A. Malaise.
B. Spine not rigid in first and second stages, ankylosis in third stage.	B. Rigidity of spine.
C. Rest good at night.	C. Night-cries.
D. Seldom pain.	D. Pain of nerve terminals over thorax or abdomen.
E. Muscular weakness may be present.	E. Cervical disease, head in wryneck.
F. Asymmetry first noticed by dressmaker or tailor.	F. In cervical — hands under chin.
G. Generally primary, right dorsal curve.	G. In upper dorsal — chin and shoulders up, neck forward.
H. Secondary curve toward left.	H. In dorsal lumbar — hands on knee.
	I. In lumbar — abdomen forward — shoulders back.
J. No fever.	J. Generally some fever.

SYMPTOMS.—Continued.

Scoliosis.	*Spondylitis.*
K. Digestion good.	K. Indigestion and intestinal irritation.
	L. Cachectic.
	M. Destruction of bone.
	N. Angle acute.

STAGES.

Scoliosis.	*Spondylitis.*
1. Initial stage.	1. Initial.
2. Stage of development.	2. Destruction and abscess.
3. Stage of arrest.	3. Resolution or reproduction.

TREATMENT.

Scoliosis.	*Spondylitis.*
A. Tonics.	A. Tonics.
B. Exercise for muscles and spine.	B. Immobilize the spine.
C. Remove superincumbent weight.	C. Remove the superincumbent weight.
D. Self-suspension.	D. Suspension must be mild.
E. Suspension without limit.	E. Care should be taken not to subject the spine to great violence, but overcome the deformity by continuous leverage.
F. Racheocampsis, or forcible breaking up of ankylosis of the spine.	

MECHANICAL SUPPORTS.

A. Plaster of Paris applied during extreme suspension.	A. Plaster of Paris applied during moderate suspension.
B. Shaffer's brace.	B. Taylor's brace.
C. Braces with serpentine elastic webbing.	C. Jury-mast for disease above the seventh dorsal vertebra.

GYMNASTICS FOR LATERAL CURVATURE.

1. On stool — keynote — back and forth.
2. On stool — keynote — side to side.
3. On table — face down — circle legs to right.
4. On table — face down — circle legs to left.
5. Swinging over end of table, hands on heels, patient raises body in keynote.
6. Hands back of head, swinging body (surgeon holding feet).
7. One hand back of head, other over hip (surgeon holding feet), rise three to ten times.
8. One hand back of head, other over hip (surgeon holding feet), reversing position of hands.
9. On back — circle arms.
10. On back — circle legs.
11. On back — stick in hands, patient resisting.
12. On back — stick in hands, surgeon resisting.
13. Patient legs over end of table, hands support knees, patient raise body in keynote position.
14. Arms over convexity, patient standing keynote swinging back and forth.
15. Lying on table, greatest curve over edge of table padded, or over a pillow, forcible correction to crackling.
16. Forcible correction with hands or arms.
17. Forcible correction with Weigel, or other scoliosis apparatus.

THE INFLUENCE OF ANTISEPSIS ON MODERN CATARACT EXTRACTION.

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The extraction of cataract is an operation the success of which depends upon so many conditions that some nicety of judgment is required to determine what weight should be given to any step in the procedure for which especial importance is claimed. The skill of the operator, the nature of the cataract, the character of the patient, the instruments, the surroundings and the nursing are all factors to be taken into account when determining the cause of success or failure.

It is not the object of the author of this paper to present statistics of his own or others' cases, nor to detail methods of procedure excepting in so far as may be necessary to bring to your attention some phases of the influence which our modern knowledge of antisepsis has exerted upon this most delicate operation.

Thanks to the skill of that group of brilliant operators who surrounded and followed Von Graefe, and to the minute attention which they constantly gave to every detail of the subject, we had, even before the days when Lister announced the doctrine of cleanliness, an operation which in well-trained hands yielded excellent results, and we would be ungenerous and unjust to the memory of those great men and to the pioneers who went before them if we did not confess that in all of its essential elements the operation for the extraction of

cataract was, in its degree of perfection, far in advance of the other branches of ophthalmology, which was then the most progressive department of the science of medicine.

In 1869 Knapp published the report of his third series of one hundred cases of cataract extraction by the peripheric-linear method, in which he had 3 losses, 15 imperfect, and 82 perfect results; in other words, "3 per cent. of loss, 6 per cent. of imperfect, and 91 per cent. of good successes."

That such results could be obtained in the days when antiseptic methods were unknown, and all the special precautions against infection, which we now know to be so important, were ignored, should lead us to consider carefully the relative importance of each step in our operations and not to overestimate the value of any one element, even though it be a consideration as essential as that of asepsis.

Those of us whose surgical memories carry us back only fifteen or twenty years can recall many lapses from our present standard in aseptic surgery — the surgeon standing with his hands on the rail of the arena while awaiting the administration of the anesthetic, or holding his knife in his teeth while he used his doubtfully clean fingers as a probe or compressor. Not ten months ago I saw a surgeon whose name as a leader of medical thought has for more than a quarter of a century been known throughout the world do exactly that thing, and he belonged to the brilliant school who were able to produce such relatively admirable results as the above. (I am happy to say this did not occur in an American clinic.)

Granting that the common rules of system and ordinary cleanliness which would naturally prevail in such a clinic as was conducted by Dr. Knapp in 1869 would reduce the chances of infection in his hands as compared

with surgeons of twenty years before, our realization of the frequent and gross, though unwitting, violation of the common principles of asepsis which prevailed in that period is too keen to allow us to attribute the improvement in his results over those obtained by his predecessors, in any large degree, to greater care in that respect. No; we must give due credit to the minute attention bestowed upon every technical detail, which has been our heritage from a class of surgeons to whom we owe the high state of perfection to which this beautiful operation has been developed.

The following quotation, taken from Mackenzie on the Eye, edited in 1854, will tell its own story of the chances taken by the operator who sought fame in the removal of cataract in those days:

"In healthy, perhaps plethoric subjects, not far advanced in life, and whose eyes, except that they were affected with cataract, were in a sound condition, it *often* happens that, in the course of the first night, or even within a few hours after the operation, inflammation of a phlegmonous character sets in, with acute throbbing pain in the eye and head," etc.

What volumes this speaks of unclean instruments and dressings and neglect of the simplest and most necessary precautions, as we now know them! It will be said that here there must have been virulent infection; true, but why among one hundred cases described by Knapp in 1869 were there so few cases of infection, none so bad as the above, and only one of suppurative keratitis, while in his minute and circumstantial account of his method of procedure he says nothing of any special precautions as to cleanliness?

Must we not conclude that the degree of danger from infection varies with the degree of traumatism, and that, given a smoothly performed operation with a minimum of traumatism in a previously healthy eye, its native

powers of resistance will enable it to withstand a certain degree of infection?

On no other hypothesis can I explain the admirable results obtained by Knapp in 1869, when we are morally certain that a degree of infection must have taken place in many instances. The demonstrated impossibility of absolutely sterilizing the conjunctival sac and the margins of the lids tends to support this view.

In the present day, when after careful experimentation and patient study of the merits of the various means of sterilization both of the field of operation and the instruments employed, we have learned in a large measure to eliminate this source of danger, is it not possible that the sense of security which we feel when we can obtain a large proportion of successful results (90 and 95 per cent.) may lead us to a mistaken idea that it is to our routine observance of the rules of antisepsis that we owe our results, and not to the assiduous observance of all the conditions of success?

In other words, would it not be well for us to consider that, if the careful operators and minute observers of a quarter of a century ago could obtain such results (91 per cent. of "good successes"), we should not be content with "good enough," but should, by minute attention to details, bring this operation to that point to which it has now almost attained — practical perfection?

There are certain low grades of inflammation of an operated eye with which we are all familiar, and which, while susceptible of control to such a degree that we feel no serious uneasiness as to the possibility of finally obtaining a good result, are still capable of producing a clouding of the capsule, iritic adhesions, and under unfavorable circumstances much more serious consequences.

Closely related with the above is an insidious form of inflammation which sometimes arises, without apparent

cause, after secondary division of the capsule, when every known precaution against infection has been taken, the puncture is that of the finest needle, and the traumatism has been reduced to a minimum. It does not avail us when such inflammation arises to talk about diatheses and attempt to conceal our ignorance of the real cause by shambling explanations that do not explain. We would do far better to frankly confess that we do not know by what process an inflammation is set up, and why some eyes after operation remain intolerant of further interference, any more than we know how a foreign body in the eye may be tolerated for thirty years and then suddenly produce inflammation of the affected eye and sympathetic disease of its fellow.

If the irritability of an operated eye which causes it to become actively inflamed after such slight provocation as the puncture and division of the capsule is due to latent infection following the primary operation, there is indeed much to be desired in our methods of sterilization, and the bacteriologist who will solve the problem of preventing such insidious infection will confer a benefit upon his kind the value of which it would be hard to estimate.

About ten years ago Dr. Herman Knapp went to Berlin, and entering Koch's laboratory took a systematic course in bacteriology, after which he undertook a long series of experiments on the eyes of rabbits, in order to ascertain "how a pure wound differed in its healing process from an infected wound." In these experiments he performed the various operations employed in eye surgery, first with aseptic instruments and later with instruments infected in varying degrees, and made most careful autopsies and bacteriological investigations of the resulting wounds.

This indefatigable worker has, for more than a quarter of a century, in addition to his arduous labors in

other departments of his specialty, presented to the profession from time to time in the Archives of Ophthalmology the results of his incessant study and enormous experience in the extraction of cataract, and I know of no more effective means of studying the evolution of antisepsis in eye surgery than by a brief review of the reports of cataract operations as he has published them from time to time in series of one hundred.

The application of the teachings of Lister to the surgery of the eye was by no means a simple matter, for while on the one hand the eye protects itself by the lids and is provided in the lachrymal secretion with a means for its own irrigation, on the other it has often been demonstrated that with the lachrymal drainage system communicating directly with the nose, with the secretions which occupy the recesses of the conjunctival folds and the glands and follicles in the edges of the lids, perfect disinfection is practically impossible. And, moreover, the very means on which we depend for that purpose in other parts of the body would, if applied to the eye, excite such irritation as to render it unfit to withstand an operation.

It was for the above reasons that many high authorities, and among them Lister himself, believed that his great reform movement would be of doubtful advantage to the ophthalmic surgeon. And, indeed, before its limitations were understood, many eyes, or at least many otherwise good results, were doubtless sacrificed in the conscientious effort to give them the benefit of this great discovery.

To a degree this fact may be demonstrated in the results published by Knapp, and it is interesting to note his changing attitude of mind toward the subject from the days when he was an honest skeptic as to its value, to the time when, after the experiments above mentioned, he was satisfied, not only as to its value, but to a large

degree had learned the limitations of its applications to eye surgery. If we take his eighth series of one hundred cases, published in 1883, at a time when many of the best results of the antiseptic method were being obtained in other fields of surgery, and compare it with the third series quoted above, published fourteen years before, we will find that, while there is a vast improvement in the visual results obtained, which we may, in large measure, attribute to improved methods of operating, there is not a corresponding diminution in the number of cases in which suppuration or severe inflammation interfered with the healing process. At that time, while a thorough advocate of the antiseptic method in general, he had not convinced himself of its adaptability to ophthalmic surgery, nor of the truth of some of its more essential principles; but in order to test the question of its value more thoroughly, he adopted it in a modified form and applied it in every alternate case to this series.

The carbolic spray was used for purifying the air, and was played upon the garments of the surgeon and patient, the dressings were carbolized, but the eyes were cleansed with boracic acid and salt solution, and the instruments cleaned with a weak saline solution and "carefully wiped with a clean, soft linen towel."

While adopting, so far as the sensitive nature of the eye would admit, the antiseptic methods then in vogue in general surgery, it was evident that it was with a degree of skepticism as to its efficiency. Indeed, he here goes to some pains to disprove the bacterial theory of suppuration, as will be seen by the following: "Small protruding portions of capsule and iris may cause plastic suppurative inflammation without being bruised and without the interference of bacteria. *I believe in the mechanical origin of inflammation* as well as I believe in septic poisoning of a wound."

Three years after making this statement, Dr. Knapp published in the Archives of Ophthalmology for 1886 the results of the experiments above referred to in which he convinced himself that he had been mistaken, and, like the true teacher that he is, he at once made clear for others the evidence which had convinced him.

In the remarks made at the conclusion of that most interesting series of experiments, he says: "It has been on my part, as on that of many others, a great mental struggle to abandon the mechanical theory of suppuration."

Let us now turn to another series of one hundred of his extractions, performed after he was thoroughly emancipated from the old theory of a mechanical cause for suppuration, and had, moreover, availed himself of all that has since been learned on the subject of antisepsis and asepsis. There was in this series but one case of severe iritis and only three of mild iritis, but no other instance of severe inflammation and no case of suppuration; compare this with the results of ten years before or even with those of three years before.

So great has been the influence of an enlightened application of the antiseptic method to the operation for the extraction of cataract that, where the patient has a reasonable degree of self-control, and no serious complication exists, it has been robbed of all that element of uncertainty which led Mackenzie in 1854 to paint such a gloomy picture of the possibility of failure even in what would now be considered the most promising cases. The following simple rules of procedure which I have now observed for a long time have enabled me to do my cataract extractions with a degree of assurance of success I had never before known: Thorough and repeated scouring of the face with castile soap and water for a day or two before operating; with a solution of boracic acid and a small mass of absorbent cotton

wrapped on a match-stick I polish the edges of the lids and the lashes; before operating I irrigate thorougly the whole conjunctival sac with the same solution, and during the operation frequently flush the field in the same way, but for the edges of the wound and the anterior chamber I use a dilute salt solution by means of an Andrews pipette with a narrow tip that may be introduced between the lips of the wound. No antiseptic should be employed that will cause injection of the bulbar conjunctiva.

As for sterilization I have one simple, absolute and invariable rule: Every instrument, solution or other substance coming in contact with the eye or lid must, immediately before the operation, have been subjected to steam or to the temperature of boiling water for a sufficient time to thoroughly sterilize it.

During the healing process in the irrigation and dressing, which in many cases must be attended to daily, I follow the same rigid rule that nothing not sterilized within a short time shall touch the eye, and in order to facilitate this process of sterilization I have devised a small sterilizer and medicine-case combined, which is so compact that it can easily be carried in a small dressing-case.

SOME OF THE CONDITIONS REQUIRING SPECIAL CARE AFTER ABDOMINAL SECTION.

RUFUS B. HALL, A. M., M. D., CINCINNATI.

The mortality after abdominal section is largely dependent upon the thoroughness with which the patient is prepared for the operation, and the readiness with which complications are met after the operation is completed. In emergency cases, where no time can be taken for preliminary treatment, the after-care of the patient becomes a question of the greatest importance. The after-care of the ordinary case is a source of great anxiety to the operator until the danger period is past, but the emergency case is one that involves greater responsibility and anxiety.

We shall not speak of the after-care of emergency cases, but of the after-care of the ordinary case. That the patient may have the best chance for recovery after a section, she should be given the benefit of everything known to science which will contribute in any way to her comfort and welfare.

I shall not consider in detail the preparation of the patient for the operation, for you are all familiar with it and recognize its value, but I wish to emphasize one or two important points. It would be quite impossible to establish any fixed rules to be followed in all cases, yet we might say that all cases should have hot baths daily for several days preceding the operation. One of the most annoying conditions to overcome is constipa-

tion; it is almost always present. Where time will permit, a good routine to observe is this: five to eight grains of calomel in the evening, followed by sulphate of magnesia in the morning, and every second morning for a week or so, by a saline purge. This, in conjunction with full doses of strychnia given three or four times a day, and proper attention to a diet which does not constipate, will be found efficient. Now that we understand so well the evil effects of the bacillus coli communis, we can better appreciate the necessity of putting the intestinal tract in a good sanitary condition. In addition, it puts the patient in a better condition to secure an easy and prompt evacuation of the bowels following the operation.

I also attach much importance to a careful examination of the urine. If the kidneys are found defective in the performance of their function, the condition is corrected as far as possible by careful medication, quantities of Lithia water and hot baths. If marked organic disease of the kidney exists, we are made aware of the true condition before the operation and select the anesthetic that is least likely to be harmful.

The patient always complains of severe pain directly after regaining consciousness, but if she is prepared mentally before the operation for this condition, and told of the great necessity for avoiding morphine, as a rule she can be persuaded to bear the pain. At the end of eight or ten hours if she has not been given morphine she rarely complains of pain; but if one dose is given, its use will have to be continued for three or four days at frequent intervals, thus complicating the convalescence. I am seldom compelled to give morphine after an operation; in fact, I have given it to but one patient in two and one-half years. I occasionally give codeia, which does not relieve the pain so thoroughly but gives some relief. It does not have the bad effect of mor-

phine, and it satisfies the nervous patient's desire that something be done to relieve the pain.

Another condition with which we have to contend is extreme thirst. Almost the first thing a patient asks for is a drink of water, but it must not be given. She must have absolutely nothing in the stomach for twelve to fifteen hours, as it increases the tendency to vomit. Another reason for refusing water is, if we withhold all fluids the excess of fluid in the peritoneal cavity will be more readily absorbed. After twelve or fifteen hours, if there is no vomiting, give a teaspoonful of hot water, as hot as the patient can stand. It quenches thirst better than cold and has a tendency to prevent vomiting. The thorough physic from the salines, plus the section, creates a great thirst. To allay this and supply the body with water, give an enema of twelve ounces of a saline solution within an hour after the operation, repeating it every four or five hours for twenty-four or thirty-six hours. The patient complains comparatively little of thirst if thus treated.

Ether is more likely to cause vomiting as the patient is returning to consciousness. As vomiting is one of the complications following operations, and once started is difficult to control, everything likely to cause or aggravate it should be avoided as far as possible. It is one of the most annoying conditions with which we have to deal, and as a general rule the less you do in the way of medication the first six hours after the operation the better it will be for the patient. Put absolutely nothing into the stomach ; give the patient nothing for the vomiting. I frequently have to oppose the views of the family attendant in these cases. He wants to give the standard remedies for vomiting and insists upon it. I have found it to be a fact that the more we put into the stomach the first six hours, the longer the patient will continue to vomit. What she needs, and

the best treatment for this condition, is to withhold everything from the stomach.

If, however, the patient continues to vomit for ten or twelve hours or longer, you may look for a cause other than the anesthetic, probably sepsis, septic peritonitis or both. Patients as a rule do not vomit longer than six to eight hours after an operation when the nausea is due to the anesthetic alone. If in addition to the vomiting the patient has a quick pulse, is restless, or the abdomen is distended, the vomiting requires our closest attention, for now it is all-important that it be stopped. It is now evident that it is not from the anesthetic but is due to a septic condition, and the sooner we can get the bowels moved the better for our patient. In fact, the vomiting will not be controlled until the bowels are thoroughly evacuated. For this condition I use a fourth to one-half grain dose of calomel rubbed up with a little sugar of milk, placed dry on the tongue every thirty minutes. If the vomiting occurs oftener than every thirty minutes, repeat the dose after each attack of vomiting. This, with a small mustard plaster over the stomach, with hypodermics of strychnia given every three to four hours, is continued until the bowels are moved.

I pursue the same course of treatment for the gaseous distention of the bowels. From six to eight hours after commencing the calomel, I order enemas of two ounces of glycerine with as much warm water, to be repeated in an hour. If this does no good, I use an enema composed of two quarts of warm water, an ounce of turpentine and two ounces of glycerine, through a rectal tube, passed far up in the colon, instructing the patient to retain it as long as possible. Even if there be no movement, the patient will frequently pass great quantities of gas with the injection and feel much relieved. If

the bowels move, the vomiting is at an end at once and convalescence established.

Suppose we have done all this and the bowels have not moved. In many of these cases the patient has stopped vomiting by this time, or at least does not vomit so frequently. I then give a Seidlitz powder every half-hour or hour; or a solution of citrate of magnesia, two ounces every hour; or sulphate of magnesia, a teaspoonful every hour; and repeat enemas every hour or two. I continue the hypodermics of strychnia in full doses. I persist in this line of treatment until the bowels are thoroughly moved.

There are many dangers following these operations, but those most frequently met with are shock, the influence of the anesthetic, and hemorrhage. These may be partly guarded against by careful preparation of the patient and thorough work by the operator, yet they cannot be entirely obviated.

As a prevention from shock, two ounces of whisky with four ounces of warm water should be given per rectum, one hour before the anesthetic, and a hypodermic of one-twentieth grain of strychnia twenty minutes before. If the patient suffers severely from shock during or following the operation, she should have one-fortieth grain of strychnia, hypodermically, within three-quarters of an hour after the first dose. If necessary, I would continue the strychnia in one-fortieth grain doses every two hours, until four more doses have been given. This will give the patient's heart strength and reduce her pulse. She should be kept as quiet as possible, surrounded with blankets and jugs of hot water, and the surface of the body not exposed to the atmosphere. I have little confidence in whisky given either per rectum or hypodermically while the patient is suffering from profound shock. Our main reliance must be upon strychnia, digitaline and nitroglycerine.

I frequently combine one or both of these remedies with strychnia. The nitroglycerine is a good remedy for temporary effect, but its effects only last a few minutes, therefore we must rely chiefly upon the strychnia and digitaline.

The bad influence of the anesthetic upon the heart, kidneys and the lungs is recognized by every one. The risk can in some measure be anticipated by proper preparation of the patient. The danger of suppression of the urine is less in sound kidneys than in diseased ones, therefore the necessity of careful examination of the urine, chemically and microscopically, so that we may know something of the condition of the kidneys before the operation. Other things being equal, chloroform is safer in the presence of renal disease and ether in cardiac disease. If there is no contraindication, I prefer chloroform as the routine anesthetic. I have found the detrimental effects of ether, by diminishing the secretion of urine, so universal that I have discarded it altogether in my abdominal work, except in a few rare instances of heart lesion. In such cases, where I feel that the danger to the heart from chloroform overbalances the danger to the kidneys from ether, I use the latter.

I wish to emphasize the fact that a man experienced in giving anesthetics is of great value, and his services greatly increase the patient's chances for recovery. One who will give his undivided attention to the administration of the drug; who is ever watchful of the patient's condition; who is not in any way interested or absorbed mentally in the operation; one who is not ambitious to become an operator himself, and in his desire to witness the details of the operation or some unusual condition encountered, neglects his responsible duty, is to be desired, and in all large cities the services of such a man can be secured. My anesthetizer, Dr. Colter, uses from a drachm and a half to three drachms of chloroform,

keeping the patient under surgical anesthesia from thirty to forty minutes. It is very rarely that he uses more than three drachms. By thus minimizing the amount of the anesthetic, we lessen the danger to our patient, and that may make all the difference between recovery and death in the ultimate result.

Notwithstanding careful preparation of the patient for days preceding the operation, where examination has revealed a lesion of the kidney, and in a few cases where no such lesion could be detected, suppression of the urine has followed the operation. In some of the most obstinate cases, the patient has secreted six or eight ounces of urine the first twenty-four to thirty hours, and then there was entire suppression, followed by coma.

The following two cases will serve as illustrations of suppression of urine following operations, both in the presence and absence of organic disease of the kidney.

CASE I.

Mrs. S., aged 52, operated upon May 16, 1892, under chloroform for the removal of a very large ovarian cyst. The legs and feet were œdematous when admitted May 3d. She had secreted but a few ounces of urine in twenty-four hours for several weeks previous. Large quantities of albumen were present and microscopical examination showed granular casts. The day of admission and up to the following morning she suffered so much from dyspnœa that it was thought best to tap her. Several gallons of fluid were drawn, giving temporary relief, and more urine was secreted for the next few days. On the morning of the 16th it was thought best to make the radical operation, notwithstanding one-fifth of the bulk of the urine was albumen. The first eighteen hours after the operation the patient secreted seven or eight ounces of urine, and then for a few days from two to six ounces daily. In spite of catharsis by salines, and

sweats, the kidneys refused to act. She was so feeble that I feared to use pilocarpine and resorted to corn-pack sweats, which acted nicely and relieved the coma for eight to twelve hours. She again relapsed into her comatose condition, and the sweating process was repeated at intervals of ten to eighteen hours. We administered digitaline and strychnia hypodermically, and gave large quantities of Lithia water. Her strength was sustained by liberal supplies of liquid nourishment. On the fifth day the function of the kidneys was resumed. The patient made a good recovery, and went home at the end of five weeks, and is now enjoying good health.

CASE II.

A resident of Louisville, 28 years old, married three years, was visiting friends in this city. Since her marriage she had had a number of attacks of inflammation in the abdomen. The present attack commenced as her previous ones, but more severe. In the fourth week of her present illness I was called to see her in consultation with her physician, Dr. Van Meter, of this city. She was very ill, had a high temperature, rapid pulse, chills, sweats and vomiting. She had a tumor in the pelvis somewhat larger than a cocoanut. From her clinical history and physical examination I diagnosed suppurating tumor in pelvis. She was admitted to the hospital on November 5, 1893, and a section was made on the morning of the sixth. A double pyosalpinx and two suppurating ovaries holding fully a pint of pus were removed. The anesthetic was chloroform. She rallied nicely, and secreted eight or ten ounces of urine the first twenty-four hours. The next six hours she became drowsy. At the end of twelve hours she was catheterized and less than an ounce of urine removed.

Notwithstanding the fact that she had free purgation with salines, profuse sweating from pilocarpine at inter-

vals of eight or twelve hours for the following five days, she was so thoroughly comatose that she was unable to answer questions. For fully twenty-four hours of that time she could not be aroused at all. She was sustained by hypodermic injections of strychnia, digitaline and nitroglycerine. Pilocarpine had such a weakening effect on her heart that we substituted corn-packs. This acted nicely. On the seventh day she secreted seven ounces of urine, and the eighth day twenty ounces, and from that time the kidneys acted nicely without any stimulation. She made a complete recovery and was discharged December 15th, and is now enjoying good health. Only a trace of albumen could be detected in the urine at any time, and never anything abnormal under the microscope. Knowing as we do that suppression of the urine is one of the most fatal complications we have following these operations, the happy termination of these cases is a matter of congratulation, and an argument in favor of the treatment adopted.

One of the conditions to be dreaded, especially following inflammatory and suppurating diseases in the pelvis, is hemorrhage. We have been thorough in our operation; liberated all the organs by breaking up the adhesions. We have quite a good deal of hemorrhage during the operation, and the collapse necessarily following the manipulations and loss of blood ; we find the patient is not bleeding more than a general oozing when we put her to bed, and so feel perfectly secure. As she rallies we find the hemorrhage starts up. There is bright red blood welling up through the drainage tube and soiling the dressing. If the hemorrhage is not too severe, we keep the drainage tube dry by repeated pumping as often as every ten or fifteen minutes. If the hemorrhage is persistent or increases in quantity, making a profound impression on the patient, reopen the wound and secure the bleeding point. The reopening

of the wound is a serious procedure, but under these circumstances there is nothing else left to do, and if this is to be successful it must be done promptly. If we delay until the patient has lost a greater quantity of blood, her life will be sacrificed. It is now a question of saving the patient from a death by hemorrhage, just as if you had a hemorrhage from the stump of an amputated limb — not so quick, but quick enough. I have little doubt that many patients have been lost from this cause. With the patient in Trendellenburg position, it is not a difficult matter to find the bleeding point and secure it. It may be that the ligature has slipped or cut through the pedicle, or possibly a bleeding point has been overlooked during the operation ; but no difference what the source of the hemorrhage, it must be controlled or the patient will surely die. There is nothing in this work that tries my courage as a hemorrhage under these circumstances. The following cases very fairly illustrate accidents of this kind :

Mrs. M., of Troy, operated upon in the Woman's Hospital April 1, 1891, for the relief of a chronic inflammation in the pelvis. Adhesions were extensive and firm. Both appendages were removed. The patient suffered from nausea following the operation. There was the usual amount of drainage from the drainage tube during the day. The patient was very unruly, not heeding the instructions of the nurse ; she persisted in straining desperately at each act of vomiting, and at 11:30 that night, while retching, felt something give way in the abdomen and called the nurse's attention to it. On inspecting the dressings, they were found saturated with blood and blood running from the drainage tube. I was notified by telephone and at once repaired to the hospital. I reached the patient within an hour after the accident and found her semiconscious and a pulse that was scarcely perceptible. With the assist-

ance of two nurses, without removing the patient from the bed, I at once cut the stitches in the abdominal wound and found that the ovarian artery was cut through by the ligature, and the pedicle more than half cut off. This was seized and ligated without difficulty, the abdomen was irrigated and closed, and the patient had no further trouble from this source. She made a prompt recovery. I have no hesitation in saying the patient would have died within a very short time without surgical interference.

We occasionally see large varicose veins in the pedicle in operation, both for the removal of ovarian cyst and fibroid tumor; these are a source of post-operative hemorrhage that has not been duly recognized by the profession. I reported a case of this kind operated upon in October, 1892, where the vein ruptured on the proximal side of the ligature the second day following the operation. On January 21, 1895, I removed a large fibroid tumor from Miss W., Mt. Vernon, at my private hospital. It was observed there were very large varicose veins on one side. This condition was commented upon during the operation. Everything went well; the incision was closed. While applying the dressings, we noticed blood running from the drainage tube. I immediately cut the stitches, reopened the abdomen and found a pint or more of blood in the pelvis and a rent in the vein on the distal side. The vein was ligated separately. The patient made a good recovery. If the drainage tube had not been placed in this patient, we would have had no means of knowing of the hemorrhage until too late to save her life. The shock from the loss of blood would have been misconstrued as the shock of the operation. Enough has been said to emphasize the statement made before that these are trying cases which do not admit of any half-way measures.

REMOVAL OF A CHYLOUS CYST OF THE MESENTERY.

THOMAS C. HOOVER, M. D., COLUMBUS.

The rarity of chylous cysts of the mesentery, and the difficulties attending their removal or treatment, seem to me to be sufficient reasons for reporting the following cases.

In the latter part of September, 1890, I was requested to see the case by the late Dr. Hecter, of this city, and found as follows:

Mrs. Annie O—, aged 23 years, mother of one child, family history good. Had been in good health until about eight months before I saw her, when she began to suffer some discomfort in the abdomen; soon after she noticed a small lump in the right side of the abdomen, a little below the line of the umbilicus. It grew rapidly, and at the time I saw her was about five inches in diameter, freely movable, and situated to the right of and a little below the level of the umbilicus. Patient had recently lost flesh and had suffered dragging pain. The tumor was indistinctly fluctuating as if tightly distended. The menstrual function was normal. No uterine disorder of any kind. A previous diagnosis of ovarian tumor had been made and there was no apparent reason for differing therefrom. An operation was advised and consented to, and the patient was sent to St. Francis Hospital, where I operated on the 2d day of October, as follows:

The necessary arrangements having been made and the patient properly prepared for an abdominal section,

assisted by the late Drs. McBriar and E. F. Clark, I opened the abdomen with an incision in the median line three inches in length, between umbilicus and pubis. The tumor, which had been pressed downward by an assistant, presented at the opening, and in appearance was much like an ovarian cyst, its surface showing a few enlarged blood-vessels. In passing my fingers around the tumor to ascertain if there were any adhesions and the point of its attachment, I found to my surprise that it was attached to the mesentery instead of the uterine appendages. It was tightly distended, but its walls seemed to be thick and firm. To enable me to get it out through the opening and thus better investigate its origin, I tapped it with a small trocar and drew from it about three pints of a lemon-yellow, gruel-like fluid, which came with great force. The attachment to the mesentery was oval in shape, about seven inches long by three wide. By pressing my fingers behind the cyst along the line of its origin, I found that I could very nearly bring them together and there seemed to be very little tissue between them. This determined me to attempt its enucleation. Fearing the great amount of hemorrhage that usually attends these operations, I passed an interlacing ligature along the line of attachment, being careful to avoid including the entire thickness of the mesentery. I then made incisions on either side of the base of the tumor about an inch from the line of the ligature, and by careful dissection removed it from its bed. The flaps of mesentery were brought together with a continuous suture, adjusting them with great care so that the edges were nicely approximated. The toilet of the abdomen was performed, and a glass drain placed in the lower end of the wound, and it was closed with four points of suture. The usual dressings were applied and the patient put to bed. There was no hemorrhage, and aside from the

dissection of the flap from the cyst wall, the operation was rapidly performed.

The patient made a slow recovery, but, with the exception of recurring colicky pains for the first few days, did not present any unpleasant symptoms. The bowels opened on the fifth day spontaneously. She returned to her home in the city in the fourth week after the operation, and is living and well to-day.

The literature of the mesenteric cysts is very meagre. As near as I can find about thirty have been reported by a large number of reporters. The differentiation from other cystic growths in the abdomen is recognized as difficult. They have been mistaken for ovarian tumors in several instances. Péan reports three such cases, and Watts another. The chylous variety rarely attains a size larger than an adult head. Greig Smith says, "It is impossible to diagnose them with precision. They clearly contain fluid, though fluctuation is usually obscure."

The method of operation recommended by writers is that of incision and drainage. The American Text-Book of Surgery says: "Extirpation of a cyst of the mesentery should not be attempted, as it is attended by troublesome hemorrhage, and the obliteration of a large number of mesenteric vessels might be followed by gangrene of the intestine. These cysts can be successfully dealt with by incision and drainage." This latter operation must be attended with the most painstaking care at the time and during drainage to avoid the danger of sepsis. A realization of these dangers, and the fortunately semi-pedunculated attachment of the growth led me to the procedure above described.

Chylous systs of the mesentery have been removed by von Bergmann, Fetherston, Werth, of Kiel, and Rasch.

PSORIASIS VARIOLIFORME (*MIHI*).

EDWARD SHIELDS, M. D., CINCINNATI.

Being that this unique form of psoriasis has never been described or reported, I take great pleasure in submitting a case report of the same.

If I have infringed upon others by designating this form of psoriasis and claiming to be the first to give an accurate description of the same, it is not my fault, as I have searched through all the literature of dermatological affections reported during the past fifteen years and have found no similar case reported.

I have always been against the giving of new names or classifications for dermatological lesions, because our classification at the present day is quite complex. It is so because different dermatologists prefer to give another name according to their own liking to diseases which have already been named and accepted by the profession at large. In order to be conversant with the dermatological literature of the world, it is absolutely necessary for one to know the various synonyms used throughout the world. If I have wrongly taken the credit for this disease I wish to be corrected.

In the report of my case, we have three separate and distinct varieties present, namely, the punctate form, the varioloid form, and the pustular or psoriasis empyodes. The first is quite common, the last form very rare, in fact it is not mentioned in many text-books, and the second form, the subject of my report, is not mentioned in the literature of the globe.

When the patient was seen for the first time, after a hasty glance, from the peculiarities of the scales I made, as I always do, without asking questions as to the onset and duration of the disease, what you would term a snap diagnosis. I have always held that an instantaneous diagnosis is the best diagnosis, for the reason that after close observation one skin affection can simulate many.

In this case, after making the diagnosis of psoriasis from the thickened silvery white scales, I was nonplussed to account for the peculiar and distinct umbilication of the scales, and was then compelled to ask the parents as to the onset, time and duration of the disease. From the fact that I have never seen a parallel case my first diagnosis was somewhat dubious, and I was beginning to think that I was dealing with some acute disease instead of one of seven years' duration.

The history of the case is as follows: The patient, a girl nine years of age, robust and well developed, presented herself at my office on the 19th of February, 1895, giving the following history: Has had some of the diseases of childhood, otherwise has enjoyed the best of health. Since the second year of childhood she has been the subject of a squamous, circular, flat, slightly elevated eruption affecting more or less of the entire body, extremities, face and scalp. The eruption made its appearance first on the extensor surfaces of the extremities, and later became diffused over the entire body. The unaffected parts were dry and harsh, the epidermis considerably thickened. No history of skin disease in the family or in the family of the parents.

The face is covered by some seventy-five patches presenting the following characteristics: Each plaque, varying in size from one-eighth to one-half inch, is covered by a crust of thick scales of silvery white color and decidedly umbilicated. The diameter of the umbilication is equal to one-half of the whole diameter; the floor

or base of the umbilication is of a blackish color. A comparatively bright halo surrounding the plaque extends a short distance from the margin of the plaque, and then gradually fades away. Upon removing the scales we find a bright red, conical depression, from the bottom of which a few drops of blood are seen to exude, the hemorrhage coming from the exposed papillary blood-vessels. In some of the depressions we find a small quantity of clear serum, in others a small quantity of thin yellowish-white purulent matter, while in others no moisture is to be found. The under surface of the depression is conical, with the base directed upwards; the length of the cone is about from two to four times the depth of the umbilication. Some of the cone-shaped projections are of a silvery white color, others are stained a golden yellow, the result of the serous discharge, while others are colored with the pus. Those in which there was no exudation, leave, after the hemorrhage has ceased, a conical depression which remains permanently scarred.

On the ears the same conditions are found, the neck is free. Between the last cervical and eighth dorsal vertebræ thirty plaques are found. Situated over both shoulders are some twenty-five plaques presenting the characteristics of those already mentioned. On the forearm are several plaques of the punctate and guttate variety. Around these we have scattered here and there some of the umbilicated form. On the arms a like condition is found. The eruption in the sternal, umbilical and lumbar regions numbers some hundred odd plaques. A similar condition exists in the sacral region. The inguinal region has about ten plaques similar to those already mentioned. On the right labia majora are two small plaques one-half inch in diameter, corresponding to those already mentioned. The thighs and legs, both on the extensor and flexor surfaces, as

well as on the lateral aspects, are studded with hundreds of plaques, placed so near together that it was impossible to see the normal skin. Examination of the blood with the Thoma-Zeiss apparatus shows five million red corpuscles.

From the foregoing history I am led to believe that we first had to deal with the punctate or guttate form of psoriasis, and that later these forms have undergone the changes already alluded to in the beginning of my paper. In all probability, as the result of a low grade of inflammation starting in the corium, where the first manifestations of psoriasis are found, atrophic disturbances have occurred, the result of the inflammation and irritation of the scales due to pressure and a lack of hygienic treatment either on the part of the patient or on the part of the medical attendant. This view I simply advance for one of the varieties in which we have the formation of scar tissue in the skin without the presence of pus. There is only one other dermatological affection wherein we have the formation of scar tissue without the formation of pus, and this is erythematous lupus. As to the third variety found, psoriasis empyodes varioliforme, we had to do first with the ordinary form of psoriasis, and this later, the result of infection, became pustular, destroying the epidermis throughout its entirety and also invading the corium, so that when the process of repair is finished we have a cicatrix corresponding to the destruction of tissue remaining behind.

Under the following therapy the patient was dismissed as cured at the end of eight weeks: The patient was given a hot bath, remaining in the same for a half hour, then scrubbed well, using the oleate of potassium. After this thorough scouring there was a slight oozing of blood from the exposed papillary vessels. The right leg was covered with a ten per cent. ammoniate of mer-

cury and dehydrated vaseline, the left leg with a ten per cent. pyrogallic acid and dehydrated vaseline ointment. The arms were covered with a ten per cent. boracic acid. On the face and scalp the ammoniated mercury was used. On the abdomen, chest, shoulders and labia a ten per cent. chrysarobin traumaticin solution was used. All parts were then wrapped in cotton and bandaged. The dressing for the first three weeks was changed daily, and afterwards two or three times a week. At the end of every week the patient was given a hot bath and scrubbed with oleate of potassium. The use of the ointments upon the extremities and body was changed for the use of boracic acid ointment at intervals, as the continued use of mercury and pyrogallic acid would be liable to cause a dermatitis of the skin of children, and they could not be used over a very large surface for any great length of time without causing ptyalism or nephritis and hematuria.

The urine was examined daily for blood and albumen, neither of which were found during the entire course of the disease. I may here state that all dermatological affections repair much quicker when the parts are well bandaged.

THE PHYSICIAN AS A CIVIC FACTOR.

W. S. PHILIPS, M. D., BELLE CENTRE.

My conception of a state is that of a unit made up of a variety of interests, each one of which is the natural and legitimate coefficient of all the remainder. That these interests can exist and progress without friction the one with the other, presupposes a certain amount of self-denial on the part of the individual representatives of each.

The interest represented by the physician is a common one, and one for which he asks for the surrender of no personal right except as it may subserve the common good.

The foundations of the present civilization were laid over two thousand years ago, and from that day to the present the predominant idea in the mind of the legislator and the statesman has been the pockets and the property rights of his constituency. The lesson ought to have been thoroughly learned long ere this.

Other questions in the last half-century, such as education and questions of moral import, have been assuming a tangible shape, but the doctor in his field in the State of Ohio has failed to impress society with the necessity of intelligent care for their bodies through the channel of State supervision and with his idea of the standard of excellence which it is desirable that he should attain. We have been treating this case symptomatically long enough, and it is wholly relevant at this juncture to institute a bureau of inquiry to ascertain

the cause, that the remedy may be intelligently applied —applied in the interests of good citizenship and by those loyal to the best interests of humanity or that phase of it for which they are best fitted by education and modes of thought. It is the business of the physician in his professional capacity to look after the physical well-being of society, which is far more comprehensive than the popular estimate, that of prescribing powders and pills.

If age lends dignity and experience begets wisdom, surely the profession of medicine can lay claim to both; and those who honestly and conscientiously devote themselves to this branch of human knowledge are entitled to the same consideration if backed by culture, stamina, and personal worth.

It is a good thing for a physician to study himself individually and as a representative of one of the factors of society; to take in the whole landscape, as it were, with the mass of struggling humanity, and see wherein the world has been made happier and better by his labors. It is not wholly a matter of private gain, though that is an excellent stimulus to work; nor of individual greed, as that shuts one up in a little world of his own.

The student of medicine is looked upon as a sort of steel-trap, into whose teeth is flung an aggregation of what is accepted as facts, expecting him to grasp and utilize them in his work. He does utilize them, and too often continues to utilize them, and in ten years' time he becomes a back number, and remains an obsolete figure during the remainder of his days.

The exact circumstances under which the facts were presented recur but seldom in the lifetime of any individual; hence a proper conception of an ideal preparation for the practice of medicine is the cultivation of habits of study and investigation, keen observation

and acute perception, sound reason and good judgment, or in other words to create the ability to "prove all things and hold fast to that which is good," together with a knowledge of the elementary principles upon which our science is founded, and upon which any well-rounded and well-developed man can rear a magnificent structure as the result of his lifework.

An intellectual and moral force in the world, in order to carry weight with its teaching, must possess the consciousness of character; but unhealthy excrescences, so common in our ranks, rob the profession of that consciousness, and render abortive almost every attempt in lines auxiliary to their work and in which its members are interested as citizens. Where the inducement to excel is of a monetary character, or that which procures fame, men will bend every energy to accomplish the desired result; but ours is largely philanthropic and moral, and in consequence too often fails to stimulate the best energies of manhood.

Notwithstanding these discouragements, the physician has accomplished much, not only in the way of mitigating but preventing human suffering and death through the medium of State authority; but much remains that ought to be done, some of which we will specify briefly.

The first is, to bring if possible the medical service of our benevolent and reformatory institutions under State regulations similar to the rules known as civil service. That this service is made the subject of rise and fall with the tide of political fortune, is the regret of every honest physician, and works only evil, for the reason that it takes away every inducement to excel and makes it liable to every abuse that the mind of man can conjure.

The degree of adaptability ought to be judged from the standpoint of the physician rather than that of the politician.

Again, physicians owe it to themselves and to society to rescue the question of expert testimony from its present status of ignominy. Expert medical evidence is the one thing that brings the blush of shame to the cheek of every honest man; coming as it does from among the best intellect of the profession, it is used largely to overbalance the scales of justice on the side of wrong, and proves one of two things: either that men are incapable of rendering an unbiased opinion when a good fat fee is in prospect, or that medical opinions are to be bought and sold like so many stocks and bonds in the market. Medical evidence ought to be made available only to the State, and that for the purpose of arriving at the truth, and not for the purpose of convicting criminals or abetting crime.

But the great work of the physician in his civic relations is to instruct the commonweath how to secure immunity from disease. The European, receiving the proper recognition and encouragement from his government, has labored faithfully, and while time has failed to confirm the correctness of some of his conclusions, substantial progress has been made and brilliant results have been secured.

But the tripod of human woes that confronts the people of Ohio to-day is crime, drunkenness and consumption, to be remedied in part, I believe, through the processes of generation, reference of course being made to the legal aspects of the case. Considered from a sentimental standpoint the proposition seems rather cool and calculating, but who can combat its logic?

What is the sense in the State issuing to a habitual criminal a license to marry, thus sanctioning the production of an offspring that is almost sure to follow in the footsteps of their ancestors? or to a syphilitic, or an inebriate, or dipsomaniac, or fool, or whatever you may

please to designate him, that his progeny may only fill our almshouses, our asylums, and our penitentiaries?

But the consumptive has committed no crime against society that his rights have been justly forfeited, and the fact of his existence is no fault of his own. It is simply a question of whether his existence is a menace to society to be dealt with on the ground of expediency. It seems to me that the facts do not warrant the assumption that it is to any serious extent, outside the limits of home life, where exposure is continuous, under all the mental and physical vicissitudes, with its consequent variation in the process of nutrition, of which the human body is capable. However, if the facts of observation teach us anything, it is that wedlock with a tuberculous subject is only a sort of death-trap in a large percentage of cases, into which people enter innocently and unconsciously.

The physician's advice is seldom if ever treated seriously by the candidate for the marriage relation, for the reason that he is being impelled by motives of sentiment rather than sense, so that the moral influence of the physician in this direction goes for practically nothing, and whatever is to be gained must be through the channel of legal restraint.

It is only humane to protect ourselves from needless exposure to danger, and we at least go through the form of inspecting immigrants in order to exclude the pauper, the criminal, and the victim of contagious disease, from our shores, forgetting the weightier matters of the law of self-preservation that are idiopathic, and it would only be justice if society would insist that he who embarks upon the tempestuous sea of matrimony should carry with him the evidences of a clean *bill of health*, that he may not scatter along the track of his voyage moral and physical pestilence to the third and fourth generations.

CONSTIPATION, EXTRAORDINARY AND ORDINARY.

STARLING LOVING, M. D., COLUMBUS.

Since Dr. Donald McLean has discovered that Adam was the first subject of anesthesia (see Genesis xi. 21), and since we know that the antitoxin treatment was practiced by the Arabs years before the discovery of vaccination by Jenner, and before the discovery of bacteria and the evolution of the germ theory and the development of the consequences thereof, it is clear that there is nothing new under the medical sun more than under the lay luminary; and, as all subjects embraced in the science of healing have been presented in almost every possible light by men more largely gifted than I, and who understand better how to put their thoughts and knowledge into writing, I have a degree of hesitation in bringing anything before you, especially a subject so trite and unattractive as that chosen for me by the President.

Cases of extraordinary constipation, such as I shall present, have been reported occasionally for centuries, and not much of especial value is to be gained by investigating them; yet as they are rare, the history and phenomena of each case are interesting.

I shall not be able to advance anything new concerning ordinary or habitual constipation, but I may revive recollection, and I hope to excite discussion and interchange of opinion in regard to the most common, best known, least understood and worse treated of all maladies, unless it be typhoid fever, or gonorrhea.

CASE I.

I am indebted to Dr. John E. Russell for Case I., that of a young man 23 years of age, 5 ft. 9 in. in height, 140 lbs. in weight, and healthy in general appearance.

At birth he was a well-developed and sound babe, and until the third month his functions were performed in normal fashion. From the end of the third month until the end of the eleventh, he had no motion from his bowels except what was taken mechanically by his physician. From the eleventh month to the twelfth year he had by the aid of enemata one passage a month, or one every five or six weeks. For the ten years last past he has had, with one notable exception, an average of *four passages a year*, the exception being an attack of diarrhea in the autumn of 1886 consequent upon a change of habits and diet incidental to camping with the National Guard at the neighboring city of Newark, and also, he thinks, to the use of water differing in qualities from that to which he had been accustomed at home. The diarrhea continued a few days, gave him no considerable inconvenience, though new sensations, and had no injurious influence on his health. When he returned home the diarrhea ceased, and his bowels resumed their ordinary condition. He is now in the enjoyment of good health, eats heartily, sleeps well, has not at any time suffered from serious illness, and takes altogether a cheerful view of life. He said, with emphasis, that his ailment is not of so much consequence to him as it appears to be to others.

He had no movement from August 6th, 1894, to November 10th, 1894 (the date of the writing of this history), nor after until some time in December following, when his physician anesthetized him and forcibly emptied his rectum, after which a complete evacuation of the bowels

followed, or as he expressed it there was a "general cleaning out." During that long interval he remained usually well, but felt that his abdomen was constantly becoming more distended, and he experienced, especially when standing or walking, a sense of weight and of discomfort.

On examination the abdomen was found distended, and the distention was most distinguishable over the course of the large intestine, which could be indistinctly traced and outlined from the cæcum to the sigmoid flexure. His skin was clear, the perspiration normal in amount and without unnatural odor, nor was there an unpleasant odor about his body. The tongue was clean and the breath inoffensive. The urine had a specific gravity of 1028, an acid reaction, was loaded with urates, but contained neither albumen nor sugar. The family history is good, no member of the family having exhibited any tendency toward an abnormal condition of the digestive or other organs. Whenever the patient has his rectum emptied, as he puts it, "about a half bushel of fecal matter follows," and his abdomen is reduced to normal proportions. The contents of the rectum are uniformly exceedingly dry and somewhat pulverulent, but the contents of the intestine above are of the usual soft solid consistency, at least they are never so dry as those of the rectum. He has had during his life from 1,000 to 1,500 evacuations, where by ordinary course and rule he should have had at least 9,000. Exploration of the rectum last August, after the movement which occurred at that time, disclosed large dilatation, and a lack of contractility, but nothing more. The lungs, heart, liver and spleen were apparently in normal condition. Patient very intelligent and active.

CASE II.

Man aged 30 years, of spare build, height 5 ft. 10 in., fair hair, blue eyes, fair skin, with a general appear-

ance of moderately good health, but has rather the expression of despondency.

At birth was well-developed and healthy. Remained in good health until his eighteenth month, when he suffered a severe attack of enterocolitis, which was of long duration and nearly proved fatal. Convalescence was tedious, and for many weeks incomplete. When the diarrhea finally ceased and strength was restored, the bowels became constipated, and have so remained to the present date — nearly thirty years. There is never a movement without the influence of a purgative, or of an enema. All his functions, with the one exception, are normal.

Leaving the greater frequency of the movements, even though artificially obtained, there is a close resemblance between this and Case No. I., but with important differences, which are, first, if seven or eight days pass without a stool, the patient's health suffers. Dyspeptic symptoms appear, there are eructations, a foul breath, a foul tongue, fetid perspiration, the urine is increased in quantity and is of high specific gravity; there is a sense of weight in the abdomen, headache and fever. The patient becomes moody and despondent, and is finally unable to attend to his business, the law. As soon as the bowels have been freely moved, all uncomfortable symptoms disappear, and the patient feels "like a new man." Repeated examinations have revealed nothing more than enormous dilatation of the rectum, with almost if not entire lack of contractility — a state of paresis, if not of paralysis, or a want of muscular fibre. A further difference is that after (as No. I. did without avail) trying various purgative medicines, the patient found that he can keep his bowels in (for him) good condition by the use of large doses of the fluid extract of Rhamnus Frangula, aided now and then by an enema of glycerine and hot water.

CASE III.

A woman aged 38 years, of medium height, spare but not emaciated, dark hair and eyes, somewhat anemic and neurotic, but otherwise apparently in fair health. She is married, and has borne four children. Her labors have been natural and without bad after-effects. She has never had any symptom of disease of the womb nor of its appendages, or of the urinary apparatus; nor has she ever suffered from hemorrhoids, or other disease of the rectum. She is moderately wealthy, and has lived in comfort if not in luxury. She, like many other American women, is averse to muscular exertion, but is inclined to sedentary occupations and amusements. She has never been seriously ill, and sometimes boasts that she seldom has need for the services of a physician.

Though she considers herself healthy, she has been habitually and peculiarly constipated since her fourteenth year, when she was a pupil at a boarding-school. The accommodations at the school were defective and not cleanly, and from disgust, aided possibly by indolence, the habit gradually increased until finally her movements were reduced to one every fourteenth day. The habit thus established has remained unchanged to the present day, and as has been seen has not affected her health nor given her inconvenience, unless, as has occasionally happened, the period between the stools has been extended beyond the usual time, when she has suffered from indigestion, headache, and "sluggishness," but from nothing more serious. A few months ago, the reading of some of the specious advertisements which are so prominently set forth in all the newspapers, depicting the horrors of constipation, and how horror disappears and health comes from the influence of somebody's fruit-syrup, or elegant pills, directed her thoughts to her somewhat peculiar condition, and

decided her after awhile to attempt to correct it by the use of one of the lauded preparations. She took a few doses with prompt and decided effect, became decidedly ill, and requested my advice. I found her agitated, prostrated in strength, complaining of nausea, loss of appetite, and of pain and tenderness of the entire abdomen. She had slight fever, with concomitant symptoms. I advised suspension of the medicine, and rest in bed for a day or two. On a second visit three days later she was in usual health and spirits, but constipated as before taking the medicine. As she was still desirous to have her habit corrected, though against my judgment, I gave her some small doses of rhubarb, aloin, and ipecac, to be taken at bedtime every night, and three days after found her ill as before and in bed. A third attempt, a few weeks later, with Hunyadi water, had the same results, and she has made no further experiment, preferring, she said, to leave "well enough alone." As before her essays she has one passage from the bowels every fourteenth day without aid of any kind, and is quite as comfortable as though she had one every morning.

CASE IV.*

A young unmarried woman of 24 years, who grew to maturity without incident, well and strong. In her twenty-first year she became anemic, lost her strength, and suffered much distress at her menstrual periods. With each month the anemia and dysmenorrhea increased, and finally in January, 1892, extreme neurotic disturbances developed. She suffered from prolonged hysterical convulsions, semi-coma, and finally from paraplegia, with retention of urine. Meantime she complained of tenderness, and there was a degree of en-

* For the history of this case I am indebted to Dr. H. W. Whitaker.

largement of both ovaries but especially of the right. On the 26th of April, 1892, the right ovary was removed, and in the course of a few weeks the paralysis and retention of urine had disappeared, and the other symptoms had become much milder, but the tenderness and swelling of the remaining ovary continued. The menstruation was not so painful as before, but continued to give distress. After a few months, all the symptoms returned with equal if not greater severity, and on the 26th of April, 1893, the left ovary was removed. There was one effort at menstruation afterwards, and some amelioration of the nervous symptoms; but pain and tenderness in the ovarian regions continued, and the patient, from the acute suffering caused by the attempt to defecate, became habitually costive. At first she had a passage every three or four days, but finally not at all, except by mechanical means, always with great pain in the hypogastrium, and decided general prostration. There was complete anorexia, or rather the patient refused to eat because she feared the taking of food would necessitate a movement from the bowels at some time or other, and she feared the consequent suffering. Cathartics (of which many of various grades of activity were used, in moderate, and in large doses) on several occasions caused stercoraceous vomiting, but never anything like legitimate effect.

The neurotic symptoms, including the paralysis, in slighter degree returned, and the patient's condition was as before the first operations with constipation added. Her condition remained unchanged until April 26th, 1895, when a third operation was performed and a *hydrosalpinx was removed from the left side, and a hematosalpinx from the right.* The patient as before suffered but little from the operation, and on the sixth day after began to menstruate, and had a natural movement from her bowels. She is growing stronger, has but little pain, and no longer suffers from constipation.

CASE V.

A contrast. A young, strong man of 24 or 26 years. Is a machinist, has correct habits, and has never been seriously ill except from an attack of typhoid fever five years ago. Since he can remember, except during the fever, he has had two and sometimes three movements of the bowels every day, sometimes two in the morning and one in the afternoon, or the other way. During the fever and during convalescence he suffered somewhat from diarrhea, which however gradually diminished with the return of strength, and finally ceased, leaving him in his former condition.

A year ago he got the idea that if the change could be effected without risk he would like to have the number of stools reduced to one daily. I explained the possible risks and attempted to dissuade him from the experiment, but he was persistent and I gave him a few full doses of bismuth, which quickly caused constipation, loss of appetite, a foul tongue, slight fever, and general discomfort. He was satisfied, and has made no further effort to change his condition.

Cases Nos. I., III. and V. are curiosities merely. It is true that No. III. arose from morbific agencies, but the system accommodated itself perfectly, and the condition may be considered physiological. Nos. I. and V. may be considered as freaks of nature—physiological freaks. The consideration of such is of no great value, especially from a therapeutic point of view. They afford no indication which may be used for the benefit of others, yet they are interesting. In Case No. I. the defect may be considered congenital, and it would be pleasing to know precisely in what it consists, whether in lack of innervation or in paucity of muscular tissue. In Case No. III. the condition of the bowels was slowly developed, and its history supports the idea of a change in innervation.

Some authorities support the idea that in all cases of the kind there is a deficiency of muscle, and certainly in all that have come under my notice I have found lack of contractility, unusual thinness and great dilatation of the rectum and of the intestine above as far as exploration was practicable. Of course there is no mode, except by minute dissection and the use of the microscope, of determining the condition of the nerve supply, and opportunity for the application is seldom found, so that the point will probably not be cleared very soon, but the absence of the normal sensibility — that which determines the alvine dejections — would seem to point to defective or deficient nerve supply as well.

With this view they may be considered as deformities rather than physiological abnormalities. But when it is remembered that the health is undisturbed notwithstanding the retention of enormous quantities of feces, the physiological aspect again appears. The bulk of the excrement remains for indefinite periods in the intestines, but what becomes of the remainder? In some cases, from the odor of the perspiration it is certain that a portion is eliminated through the skin, and a portion is passed off through the kidneys, but is that all? How much is thrown off by the lungs? The three surfaces mentioned must be the safety-valves, else it is difficult to imagine why persons so affected do not suffer from some or all of the disturbances so common as consequences of ordinary or habitual constipation. Why do they not suffer from septic intoxication as does patient No. II.? And why not as all persons who have congenital closure or stricture, benign or malignant, of the rectum, or the intestine higher? And why is it in the classes of cases last named the compensatory effort is always so feeble and ineffective? Case No. V. shows freakishness in exactly the opposite direction to Nos. I., II. and III., and may be thought out of place in this pa-

per, but it is equally remarkable, and, as already stated, is introduced as a contrast. While from the ordinary view it appears abnormal, the patient is well and comfortable so long as his peculiar condition is not disturbed, but becomes ill whenever he attempts to reduce himself to the common level. His is a case of extraordinary activity of the digestive functions — physiological activity.

Case No. IV. is a gynecological puzzle, which no properly balanced general practitioner will attempt to solve!

Every physician is presumed to know the causes, consequences and treatment of ordinary habitual constipation, but the failure of all remedial measures is so common that there is room for apprehension that the knowledge so generally diffused is not well applied. The reasons are that it is commonly considered as trivial, not dangerous to life, and not attractive. Such reasons, however, are not sufficient, for many thousands find daily that it is not a trifling ailment; the dangers, though not impending, are many and far-reaching, and it is certainly not more repulsive than many genito-urinary and gynecological affections which have the exclusive attention of many men of high attainments, and which are so constantly paraded before the profession and the public. Whatever the reasons, it is to be regretted that the subject does not receive more careful attention.

In treatment, judging from the frequency of failure, causes are often unheeded, and the means for the relief of symptoms only kept in mind. We overlook anal fissure, hemorrhoids, polypi, stricture, ovarian or fibroid tumors, the misplaced or inflamed uterus, adhesions, an inflamed bladder, stone, an inflamed or enlarged prostate gland, or an inflamed sciatic nerve, and pre-

scribe our favorite combination of laxatives. The patient does not improve, seeks patent medicines, and after a time a specialist, and sometimes finds the relief he should have had in the outset; or when the patient presents himself with all the symptoms of anemia, and perhaps of neurasthenia in the hysterical or other form, but complaining of constipation only, it is to be feared that the real disease is ignored and the minor symptom alone recognized. *Per contra*, too often the anemic and neurasthenic patient is dosed month after month with unassimilable preparations of iron, and of neurotics without avail, the medical attendant failing to remember that the only hope of cure lies, not in the relief of a headache or a spasm, but in improved nutrition, through changed secretions, and increased digestion. It was a wise Scotchman who said that if he had to choose between iron and Rochelle salts as remedies for anemia, he would prefer the salts.

Our competitors, the patent medicine men, and the advertising doctors, are wiser than at least some of the regular brethren in that they invariably combine purgation with other remedial measures in the treatment of chronic diseases, especially of the nervous system, and of the alimentary canal. I do not wish to be understood that they prescribe more intelligently, or that they often appreciate the nature of the ailments for which they prescribe, but that the measure of success which they attain is due to the fact that they aim constantly, with other influences, to excite the secretions, particularly those of the digestive organs.

The use of purgatives in the management of acute febrile and inflammatory diseases has of late years fallen rather into disfavor, mainly because, like blood-letting and calomel, it was abused, but there are few who are familiar with the old practice as with the new who do not think there were advantages in the old which, under

the influence of fashion, until recently had dropped from view.

To the old practitioner it is rather amusing to observe the recent change in opinion, and to note the importance attached nowadays by writers and teachers, especially by surgeons, to the influence of purgatives in the treatment of febrile and inflammatory diseases—to see them returning to the practice of the fathers. The change is in the main due to the recent discoveries as to the origin of diseases, and to the rise of antisepsis, which demands the cleansing of all surfaces. There can be no doubt that advantage is to be found in the use of purgatives in the treatment of some of the eruptive fevers, as scarlatina, in malarial fevers, in rheumatism, septicemia, and in uremia; and our fellow, Dr. Woodbridge, has revived the purgative plan of treating typhoid fever, with, as he claims, marvelous results. Dare we say he is not right?

Do we not often forget the possible influences of chronic constipation in the causation of other diseases? acute diseases, such as septicemia, rheumatism, and acute gout? The auto-infection which is necessarily constant can but be prejudicial to health, if it be not active in the causation of acute diseases. This is in a way illustrated by the history of Cases Nos. II., III., and V., mentioned under the head of extraordinary constipation.

Do we not too frequently neglect the habits of the patient, the diet, hygienic measures, and prescribe medicines alone? When directing food and drink, do we always remember that some persons do not take a sufficiency of water, and that water, if strongly impregnated with lime or iron, may of itself become a cause of constipation?

Do we at all times give due weight to the influences of occupation, and the fact that as connected with occu-

pation many persons, especially women, become constipated, and finally have health ruined from lack of proper closets? In many factories, young unmarried women, in order to answer the calls of nature, are constantly obliged, at the expense of delicacy, to pass through groups or between lines of men to reach the closet, which too frequently is small, untidy, and insecure; and it is very well known that on the farm, when it exists, the water-closet is often as conspicuous as the dwelling-house and the barn, and it is equally well known that factory girls, and farmers' wives and daughters, are often the victims of permanent ill-health resulting from chronic constipation. I have thought that a few hints from the State Board of Health to factory owners and farmers would benefit an immense number of suffering women.

It is to be feared that in our prescriptions we rely too much upon the effects to be expected from medicines, and that we do not insist with sufficient emphasis upon the necessity for attention to the movement of the bowels as a part of the business of the day—the necessity of going to the closet precisely at the same time every day.

We are sometimes careless in the selection of our remedies, and prescribe the purgative which comes to mind while we are writing, when another, acting upon a different portion of the alimentary canal, is indicated.

There is no question that in the endeavor to make medicines palatable, to reduce the dose, and to put them in more acceptable form, we have lost something which older physicians knew and profited by. The use of proprietary pills, granules, tablets, etc., has become so nearly universal, and is so generally assented to by the profession, that the younger members are lax in regard to the study of materia medica, and are deficient in knowledge in regard to the preparation of the famous laxatives, purgative pills, infusions, and mixtures, of the olden time, and they are losers; for concentrated ex-

tracts, alkaloids, etc., while they have some of the characteristics of the crude drugs from which they are derived, do not by any means represent their full effects, beneficial or otherwise.

Finally, has any one studied adequately the causes and proper treatment of constipation so common in very young infants and nurslings?

ENUCLEATION OF THE APPENDIX

In Certain Cases where it is Closely Adherent to Surrounding Organs.

CHARLES S. HAMILTON, M. D., COLUMBUS.

It occasionally happens that in operations for appendicitis in patients who have suffered from repeated attacks, dense adhesions of the appendix to cæcum and small intestines are encountered. These adhesions require gentle handling, for the reason that important structures may be seriously injured in their separation. In an article on appendicitis published some years ago, Treves suggested the plan of shaving the appendix off with the knife, leaving a portion of it attached, when separation in the ordinary way was deemed unadvisable or impossible.

In a recent case where the writer had particularly firm adhesions to deal with, the following plan was tried successfully: An incision was made through the peritoneal investment of the appendix, throughout its entire length. This incision was made necessarily in the exposed non-adherent area of the viscus. The peritoneum was then stripped back as far as possible, the appendix grasped with forceps and lifted from its bed by a process of enucleation, until its connection with the cæcum was reached. At this point it was tied off. The peritoneum was then sutured over the stump, and the operation concluded in the usual way. One or two small bleeding points in the peritoneal covering required ligation or temporary forci-pressure.

The writer has applied the term "enucleation" to the removal of the appendix in this manner, viz., by stripping it out of its peritoneal coat. It is not claimed that the method is suitable to all cases in which adhesions are present. On the contrary, in operations in the interval between attacks, when in a previous attack the appendix has been perforated, or suffered a loss of a considerable portion of its wall, the blending of the peritoneum with the structure of the appendix proper may be so intimate that the process of enucleation is impossible. Although applicable to a limited number of cases, it has been thought best to draw attention to the procedure, as it seems hitherto not to have been attempted, so far as can be learned from investigation of the literature upon the subject.

A CASE OF GASTROSTOMY.—OPERATION.

W. D. HAMILTON, M. D., COLUMBUS.

Gastrostomy is a valuable palliative measure, in spite of its imperfections. When done for malignant stenosis of the gullet it may make life more endurable, and may even prolong it. It gives a discouraged, starved sufferer the means of taking food with some relish.

The patient, John S., a peddler by occupation, came from Cambridge, O. He entered the Mt. Carmel Hospital January 1, 1895. His age was 68. For the previous nine months he had dysphagia.

For the first three months he vomited after taking food. Since April 1, 1894, the effort to take solid food had been painful to him. At times it seemed to lodge at a certain point in the œsophagus. For six weeks prior to admission a bougie had been introduced daily by his physician, Dr. Wall. He had lost strength, and his weight was diminished by thirty pounds. His tongue was swollen, coated and broad. His bowels were constipated.

On January 22, 1895, he was put upon a diet of peptonized milk. Took it easily; no vomiting. Each morning he passed a variable quantity of mucus from the stomach. He gained in strength for a fortnight and began to lose again. February 2d a tube three-sixteenths of an inch in diameter was introduced full length. February 4th tube met an obstacle 12½ inches behind the incisor teeth. He was by this time very weak.

Operation February 7th, 1895. He was etherized and the plan of Frank adopted. Fenger's oblique incision, three inches in length, was made parallel and close to the left costal cartilages. Blunt separation of the parietal muscles was used. After dividing peritoneum the stomach wall was picked up at a point near the fundus. A cone one and a half inches high was pulled through the wound, and the edges of incised peritoneum were stitched to the stomach about the base of this cone. Frank's idea of stitching muscles to the stomach to relieve tension was also carried out. A second incision was made one inch long and one and one-half inches from the first one. It was located above the border of the ribs. This simply divided the skin. Two silk slings had been inserted in the apex of the cone as a means of handling it. The interposed bridge of skin was bluntly undermined, and the cone carried underneath it and out of the upper wound by the aid of the silk slings. The wound of the abdominal wall was closed, and the stomach incised with the knife for a half inch between slings, which had been so inserted as to readily allow it. The edges of the opening were stitched to the skin of the second incision, and a rubber tube was inserted into the stomach.

The above instructions were derived from Meyer's interesting article in the *American Journal of the Medical Sciences*, October 1, 1894.

The wound healed promptly within a few days, and he got out of bed. The feeding through the tube was begun within twenty-four hours after operation. For a time a slight eczema occurred from leakage about the tube. It yielded to emollient applications, and in a short time disappeared. He gained in strength and flesh for some weeks. He died at his home on the 10th of May, about three months after operation. An autopsy was performed and a specimen was set to Columbus for inspection. It has not been microscopically examined. It was evidently a carcinoma. He died of marasmus.

SOME OF THE PATHOLOGICAL CONDITIONS OF THE NOSE SECONDARILY AFFECTING THE EYE.

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The physiology of the nose is but poorly understood by large numbers of our profession. It holds an important relation with eyes and ears, and has direct connection with maxillary, frontal, ethmoidal and sphenoidal sinuses. However interesting might be the study of the relation these parts bear to each other, and the influence that disease affecting one of these structures may have on another, it is the eye symptoms alone with which this paper has to deal, and the best means by which we may be able to remove the cause.

It is very evident when we consider the anatomical relation of the eye and nose, that disturbances affecting the one are very liable to affect the other. The eye is not only in direct communication with the nasal fossa through the lachrymal canal and nasal duct, but is closely associated with it by means of the sympathetic nerves, the nasal branch of the ophthalmic, and other branches of the trigeminus. And yet, bearing in mind the very close connection between the eye and nose, I doubt if the practical attention is given to it in the daily routine of practice that is justifiable or desirable.

The continuation of the mucous membrane of the lachrymal apparatus with the conjunctiva, of course forms the readiest means for the transfer of septic

material from one to the other. The common blood-supply, the anastomosis of the veins and capillaries, show that vasomotor disturbances in the one may be felt in the other, and the mechanism of the nervous supply shows how easily neurotic conditions of one affect the other.

Attempts have been made to particularize certain ocular disturbances arising from nasal obstructions, such as hypertrophied turbinated bodies, exostosis and deviation of the septum, nasal polypi, rhinitis, etc. In the present state of our knowledge the attempt to trace such sharp etiological and symptomatological groups seems a little premature. Photophobia, lachrymation, pain, smarting or burning of the lids and globe, asthenopia, especially in one eye, are some of the more common symptoms of nasal obstruction, while those resulting from direct infection of septic material from the nose, through the lachrymal canal, are conjunctivitis, phlyctenular ulcers, follicular and granular conjunctivitis.

In considering first the mechanical obstruction in the nasal passage which gives rise to ocular disease by reflex phenomena, we may have congenital deformities and acquired or traumatic conditions.

Dunn, in the *Virginia Medical Monthly*, says that "nasal obstruction in early childhood delays development of the orbital plate of the ethmoid bone, and thus the orbit is necessarily prevented from developing properly." He finds in this an explanation of the fact that the majority of children who suffer from nasal obstruction are far-sighted to a high degree, the eyeball in the orbit being influenced in its development, and again he finds in this an explanation of many cases of astigmatism which are so common.

It is the reflex eye troubles, caused by hypertrophied turbinated outgrowths, or exostosis and deviations of the septum and adenoids, that are most commonly met

with, and fortunately which are most easily cured by proper surgical means.

Lachrymation may be of reflex origin from vasomotor changes in the nose. We all know how easily it is produced artificially by irritation of the mucous membrane of the nasal passages. Conjunctival irritability with congestion of eyes and lids is frequently of reflex origin from intranasal changes, and will resist all treatment until the nasal trouble is cured. Asthenopia, intolerance of light, redness of eyelids, blepharospasm, phlyctenular ophthalmia and retinal hyperesthesia, have been recorded by many writers.

That very annoying and obstinate eye disease, phlyctenular ophthalmia, seems to be caused both by reflex nasal irritation and by extending of the inflammatory process by continuity of mucous surfaces.

It has been suggested that some of the reflex nasal disturbances may be a starting-point for that ocular disturbance known as glaucoma. As the etiology of this disease is still somewhat in obscurity, every possible cause should receive investigation. In support of this theory, Lennox Browne reports a case of a woman attacked by glaucoma, who was rapidly cured by the removal of a nasal polypi.

Ocular disease caused by the transfer of pathogenic material from the nose to the eye, by way of the lachrymal canal, I suspect is much more common than has heretofore been supposed. Among the first to call attention to the relation of nasal catarrh to conjunctival catarrh was Bresgen, who says that the ocular sequence will not disappear without treatment of the primary nasal disease. Phlyctenular keratitis I believe has its origin almost invariably in diseases of the nose. Bucklin, in the *New York Medical Times*, says that rebellious trachoma is often dependent on disease in the nasal passages. He cites several cases which after long and sys-

tematic treatment of the lids and cornea were relieved by the cure of the nasal obstruction. Trosseau has had eleven cases of grave ulceration of the cornea that he believed dependent upon atrophic rhinitis or simple ozena.

The causal relation is considered absolutely certain from the fact that a special coccus found in the corneal ulcer is identical with that found in the secretions from the nasal cavities. By disinfecting the nose the corneal ulcers proceed to cure under the usual treatment.

One typical case among many that have come under my observation in support of the facts, is as follows:

G. K. M., age forty, having phlyctenular keratitis and corneal ulcer, had been under the care of a competent oculist for three months. After treating the eye symptoms for several weeks with no better results than his former attendant, I investigatied the cavity of the nose and found a purulent secretion on the side of the nose corresponding to the afflicted eye. There was a bony spur projecting from the septum and an enlarged turbinated body. Removal of the spur by means of the saw, and reducing the hypertrophied turbinated body by the application of trichloracetic acid, was followed by a rapid cure of the eye trouble.

Dr. Lewis Taylor reports a case of disease of the cornea which had existed for thirty years and was not improved by local treatment. Obstruction of the nose, with a purulent yellow discharge, was present. Removal of the obstruction in the nose speedily ended the eye trouble. He also describes cases of granular lids with pannus which was not cured by local treatment, being coexistent with enlarged turbinated bones. Cauterization of the turbinated bones and local treatment resulted in a cure of the ocular disease.

Every ophthalmologist meets with cases of asthenopia with but little or slight error in refraction, which are

not relieved by the most careful adjusting of glasses. I confidently believe that if we would examine the nasal fossa we would find a solution of the difficulty in many cases, and be able to relieve our patients by skilful surgical means and proper medicinal agents.

Anderson, of Chicago, in the *New York Medical Journal*, estimates "that sixty per cent. of all cases of nasal catarrh are complicated by spur ledges or deviations of the septum." The condition which we have been calling catarrh is merely a symptom of a pathological condition in the nose. We too often blindly follow a routine examination, because most text-books on ophthalmology are silent on this subject, or if they mention it at all, dismiss it with as few words as possible.

In these days of progress in medical science we have come to believe that every symptom has its underlying cause, and herein lies the key to success. Trace to its origin, if possible, every abnormal symptom, for there can be no effect that has not a cause, though it be ever so obscure. A more thorough investigation along the lines that I have indicated I believe will explain the cause of many hitherto obscure symptoms. Very many people are wearing glasses for the relief of asthenopic symptoms with the fond belief that they are being benefited, while in a large proportion of cases if physicians would seek to establish and remove the cause, the wearing of glasses would in many instances be unnecessary. It has become a popular fad with people on the first appearance of eye trouble to go at once to the jeweler or optician and procure glasses, which in the majority of cases are wholly unsuited to them, and many of these patients have no error in refraction at all, and if they were taught to take proper care of the eyes, and if the cause of the trouble was sought for and removed, would be infinitely better off.

The causes of these abnormal conditions are not satisfactorily explained. Deflection and deviations of the septum are certainly most frequently the result of traumatism. The patient at some time in life received a fall or blow on the nose; it may be in early childhood, and the circumstances wholly forgotten. The spurs and ledges that develop from the septum may be from an injury or develop as a result of repeated and neglected colds.

I come with no new and wonderful treatment of these pathological conditions; I would simply ask physicians to use the same care and common sense in their treatment as in other diseases. I do not know that I have any new remedies or new instruments to offer, without which a cure cannot be effected. I have not given details of operation and treatment, as these are given by text-books and teachers, to whom we are all indebted. I would say, however, that with proper antiseptic precautions the operations for the removal of these abnormalities, though in some instances extremely difficult, are not likely to be followed by any serious disturbances. In a series of more than one hundred and fifty operations in the nasal fossa for the removal of various obstructions, I have yet to note anything more serious than a slight febrile condition as a result. Electricity, in the form of the galvanic cautery, is very useful in reducing the hypertrophies of the turbinated bodies. The trichloracetic acid is an excellent remedy, and is much to be preferred to chromic acid. The nasal saw, the trephine, the forceps and snare are all essential, but in operations on the nose, as in other parts of the body, the surgeon must be greater than his instruments, and his skill and experience more than medicine.

MENINGITIS AS A COMPLICATION OF OTITIS MEDIA, WITH REPORT OF A CASE.

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It is well known that acute suppuration in the middle ear may lead to serious and fatal brain disease. An imperforate or tardily perforated drum may lead to a damming back of the pus, and in place of external discharge we get extension to the brain, and meningitis or abscess. The pus may get to the meninges after penetrating the tegmen tympani, or antri, or it may open into the sigmoid sinus, giving rise to thrombosis and subsequent abscess or meningitis ; or it may pass along the facial canal, or through the labyrinth, and discharge at the pars acusticus internus. In the course of acute suppurative disease the extension may also be by means of the veins without any perforation of the bone.

Again, without any obstruction to the external exit of the pus, we can have carious destruction, beginning at the onset of the ear trouble and leading to serious and fatal brain disease. The case which I wish to report and use as a text for a few remarks on the management of acute suppurations was, probably, one of these latter. The history of the case up to the time I was called in has been very kindly given me by the attending physician, and is as follows :

H. W., an actor, about 45 years of age, under treatment since December, 1894, for diabetes. (Diabetes was soon under control, and not a trace of sugar was to be

found in urine after first week in January, 1895.) Patient took sick February 5th, 1895, with a severe laryngitis and bronchitis, with some pharyngitis. Patient attended to his profession on the 6th, but on the 7th sent for his physician, as the laryngitis gave him considerable trouble. He remained at home and in bed till the 10th of February, when he attended a rehearsal and a performance, although he could hardly speak. He was persuaded to remain in his room, and on the 13th complained of earache in the left ear; the pains subsided on the following day, but increased again on the 15th. The processus mastoideus was sensitive on pressure, and the membrani tympani highly injected.

As the symptoms did not subside, paracentesis was performed, and a few drops of muco-purulent fluid discharged, especially after the air douche. The paracentesis was made on the third day after the ear symptoms began, there being no pain on second day. Patient was put to bed, and the ear washed out twice a day by the physician with a 3 per cent. boric acid solution, and the cavity cleaned once a day with the catheter. After drying, a small amount of boric acid was insufflated. The discharge was very free, the patient being obliged to change the cotton plug several times during the night. The watch was heard only on contact, a degree of deafness often accompanying acute suppurative inflammation. The general condition improved gradually, bronchitis and laryngitis disappeared, as did the fever. The sensitiveness over mastoid disappeared, but the discharge did not diminish much. A 1 per cent. solution of zinc sulphate and carbolic acid was substituted for the boric acid, this substitution being made in the third week. The discharge diminished, but not as much as was wished and expected.

Patient was obliged to take up his profession, and from the 6th of March he attended rehearsals and played

on the 10th. He had been at home from the 11th of February until the 6th of March, but in bed but one week. His stay at home was chiefly for the laryngitis and pharyngitis. From the 17th to the 23d of March he felt considerably better, and the hearing improved. March 21st, liq. plumbi. subacetate, gtt. ii. to xii. of water were put in his ear three times a day for ten minutes. On the 23d and 24th there was no discharge, and the perforation apparently closed. The acetate was discontinued, the ear being simply syringed and dried. Patient had a very exciting part to play on the 24th, and although this performance and the preceding rehearsals had been a great strain upon his nervous system, he felt very well on the 25th of March. The ear began to discharge a little on the 25th, and on the 26th patient complained suddenly of severe headache, now at the back of head, now on the top or over the eyes. The ear was free from pain. The temperature, which had been normal during preceding week, showed a slight increase, 99° in the morning and 100° in the evening. The headache was easily controlled by phenacetin, and the patient always passed comfortable nights. The mastoid was not sensitive at all, and there was no swelling or œdema in this region. The external meatus was somewhat swollen and sensitive. Patient attended two rehearsals on the 30th and 31st, and the performance on the 31st. From this time to April 6th the temperature ranged between normal in the morning and 99.5° in the evening, the headache was not quite as severe as in the preceding week, the discharge was slight but free, perforation noise distinct.

On the morning of April 7th the physician was called in haste, and found the patient in a bad condition. He had retired at an early hour, but awoke at twelve o'clock with a severe attack of vomiting and dizziness. He vomited about fifteen times in the night, and could not

move his head without inducing dizziness. Temperature was normal, pulse slow (64), processus mastoideus not at all sensitive, ear discharged freely, sensorium free, pupils normal, also speech, bowels costive. The probability of a cerebral abscess or meningitis was taken into consideration, the ice-bag applied to head, calomel and castor-oil ordered. The condition improved during the day, vomiting did not return, and the attacks of dizziness came very rarely. Patient passed a relatively good night. His condition on the 8th of April was also good, temperature 99° in the morning, pulse 66. Patient was persuaded to go to a hospital. In the evening of the day of his entrance, he was very comfortable; the night, however, was bad. Temperature began to rise, was 102° in the morning, severe headache, especially at base of head. Mastoid not at all sensitive. The evening of April 9th I was called to see patient. He was in bed, and showed from his whole expression that he was dangerously ill. Pain was very severe and located at the occiput. It was impossible to make much of an examination on account of his suffering. The external meatus contained some pus and was somewhat reddened, and swollen. This swelling was, however, diffuse, and not limited to posterior upper wall. There was absolutely no pain on pressure or percussion over the process; there were absolutely no symptoms by which we could locate the trouble.

As it was in the evening I thought we might wait till morning and see if something more definite did not arise, as from the symptoms I had no idea where we could expect to find the trouble, if localized, whether in the cerebrum or cerebellum, pain at the base being hardly diagnostic of cerebellar trouble. The appearances indicated meningitis, but I thought an abscess might exist, and wanted to have some idea of its location. The next morning the condition was

worse. Temperature 104°. Pulse 72. Night had been very bad; patient found rest only after repeated injections of morphia. There were no local symptoms of brain disease, except the unbearable pain at the base. I decided to immediately open the mastoid and see if I could discover any channel through which the pus had gotten to the brain. The antrum was found free from pus, likewise the upper cells of process; in the lowest cells there was three or four drops of pus. The cells and the antrum were filled with granulations, the cellular walls being entirely broken down. All carious bone and granulations were removed. There was no visible extension of the carious process backward. At the roof of the antrum considerable soft bone and granulations were spooned out, and I thought the meninges were reached, but no pus could be found. I unwisely stopped here, thinking that maybe we had found enough to account for his symptoms, and that possibly relief might follow. The wound was dressed as usual, and patient put back to bed. No relief followed, the temperature rose to 105° and patient sunk into a partial coma. Six hours after the first operation patient was again placed upon the table, and the squamous portion of temporal bone chiseled off, starting at the upper limit of the opening made at first operation. The temporal lobe was exposed, about the size of a half dollar; there was no pulsation, leading us to suppose that we had to deal with an abscess in the lobe. On raising up the lobe from the pyramid, an opening was discovered through the roof of the antrum, and the fingers slipped into a large cavity in the temporal lobe from which broken-down brain matter but no pus was discharged.

The patient remained in a comatose condition, and died the following day. The post-mortem revealed an extensive purulent meningitis, both over base and convexity. There was a softened cavity in temporal lobe

about size of a walnut. On the temporal lobe there was but little meningitis; there was more pus on the opposite side. The pus was in the pia mater, especially along the course of the veins. The lateral sinus was normal, and no pus was discovered about the pars acusticus internus. Opposite the opening into cavity in the temporal lobe there was a carious defect in the roof of the antrum about size of a silver three-cent piece. The ventricles contained but the normal amount of clear fluid.

We have here another of these fatal cases following otitis media purulenta, which reminds us forcibly of that famous saying of Wild's, made as long ago as 1884, "So long as otorrhea is present, we can never tell how, when, or where it will end, or what it may lead to," and although in the vast majority of cases nothing serious arises, still the possibility must be continually borne in mind. We had in this case an attack of pharyngitis and laryngitis, followed by the onset of an acute middle ear inflammation. At the very beginning, the mastoid was sensitive. This must be kept in mind, although it subsequently entirely subsided. Patient went about attending to his duties while his laryngitis and pharyngitis were still present, and his neglecting to take proper care of himself was probably the cause of his attack of otorrhea. Three days after the ear trouble began paracentesis was performed, certainly soon enough, as there was no particular bulging of the drum, and the pain was not very severe. After this the ear was treated as is ordinarily done, and the ear trouble did not particularly incapacitate him, although he was wisely advised to stay in his room. The patient gradually improved, the fever left him, and two and one-half weeks from the onset he resumed his professional duties. The following week he felt better, the hearing improved, and for two days at the beginning of the sixth week there was

no discharge, and the patient attended to his profession, playing a part which was a great strain on his nervous system. The day after this the ear discharged again, chiefly mucus, and he complained of severe headache, in back of head, over top, and over eyes, the ear being free from pain. The temperature began to rise, being 99° in the morning and 100° in evening; already we have symptoms of meningeal trouble. The headache was easily controlled by phenacetin, and patient's nights were comfortable. At the beginning of the seventh week, the patient again attended to his profession. The temperature for the seventh week was normal in morning, and 99.5° in evening, and the headache was some better. The drum was perforated, and there was no hindrance to the discharge. At the beginning of the eighth week he had very marked symptoms, dizziness, vomiting, etc. The serious nature of the trouble then became evident, and its course to a fatal termination rapid.

We have seen that the antrum and mastoid cells had largely undergone carious destruction, and were replaced by granulations, and that low down in the cells there was some pus — this with no outward manifestations, no sensitiveness on pressure, no swelling, nothing to indicate trouble in the mastoid except, may be, the diffuse swelling and redness in the external canal. This is but another example of what we often see, namely, marked destruction without external symptoms. We can never judge by the external appearances of the changes we shall find within. It has been my experience to find in these cases where the external appearances are slightly marked, not so much an accumulation of pus in the cells as a carious destruction with granulations. We also have evidence here, that in these severe cases the tympanic cavity and cells are often attacked at the same time. At the very onset here we had tenderness

over the mastoid, subsequently disappearing. I believe that from the beginning or very soon after the commencement, caries was present in the cells. There was at no time any damming back or retention of pus, and there does not seem to me to be any reason to suppose that the process extended to the mastoid, but that it began in both places simultaneously. We had an acute inflammatory caries, there was no retention of pus, and hence its painless course and the absence of all symptoms pointing to bone disease until the meninges were affected. The important lesson to be learned here is that extensive bone disease can exist in *acute* cases without external symptoms.

To explain this acute inflammatory caries we must conclude either that the infectious matter which gained access to the ear was particularly virulent, or that his diabetes predisposed him to this trouble. I can hardly believe that the diabetes had much to do with the case, because he had not been troubled prior to December, 1894, and for the last three months not a trace of sugar was to be found in the urine.

How is the general practitioner to avoid serious complications in acute middle ear suppurations? In the first place, prevent if possible the middle ear trouble. To do this rationally he must bear in mind that infectious diseases and inflammatory processes in the nose and pharynx, adenoids, etc., lead very often to otorrhea, and that otorrhea is itself an infectious disease, caused by micro-organisms getting into and developing in the tympanic cavity. Hence the nose, pharynx, and nasopharynx must be kept clean, all violent blowing of the nose when inflamed, or inflation of the drum cavity with air douche or catheter when nasopharynx or nose are inflamed, must be strictly guarded against. If the tympanum becomes affected, the trouble often subsides, if we keep the patient quiet, best in bed. For the pain a

cotton plug soaked in 10 per cent. carbol-glycerine or a solution of acetate of aluminium may be inserted into external meatus. If the pains, fever, etc., do not subside, the paracentesis must be made. And right here let me urge every general practitioner to fit himself for performing this small operation. A paracentesis made at the proper time often avoids very severe trouble. After rupture of the drum, or paracentesis, the canal is to be washed out gently with a mild antiseptic solution and dried, stuffed lightly with antiseptic gauze, then if possible bandage the ear and keep patient at home. Gauze is much better than cotton; it soaks up the secretion better, drains the canal better, and should always be used to plug up the meatus. Cotton becomes matted down and soggy, while the gauze in a way sucks up the secretion. The gauze is to be packed down onto the perforation; by this means the pus is absorbed as soon as it appears at the opening. If necessary have the patient change the gauze four or five times a day. He soon learns to pack it in tightly. Let this and this alone be the treatment for three weeks if necessary. The majority of acute ear suppurations will stop in this time. Above all do not blow powder into ear, or instil astringents, or use the air douche, or catheter, until all acute symptoms have subsided. An acutely inflamed part needs rest, and should not be irritated. If possible keep patient in his room. Powders in acute suppurations are not indicated; their place is in chronic suppuration, with large perforations. It is much better to do too little than to try to do much. I am convinced that a great deal of the mastoid trouble is brought about by too active measures early in the middle ear inflammation.

Every case of acute suppuration must be carefully watched, and every elevation of temperature after the fever at the commencement has subsided, or any headache or exacerbation of pain, should be looked upon as

indicating some affection of the cells or meninges. Swelling of the membrane lining the auditory canal, especially any bulging of the posterior superior wall, is always indicative of possible mastoid complication. If caries or extension of the suppuration to the cells arises, then the parts must be opened up as soon as possible. I do not believe in waiting, although I know that swelling and pain over mastoid often subsides after application of leeches, or other antiphlogistic measures. If there is doubt it may be well to apply leeches, and then if there is no abatement of the symptoms to operate. The case reported and two others recently coming to my knowledge have made me less conservative than I had become inclined to be.

THE ELECTRICAL TREATMENT OF FACIAL BLEMISHES.

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The use of electricity in the treatment of facial blemishes is followed by more apparent and satisfactory results than the use of this agent for any other disease or abnormality. In fact the effects are as plain as the results of a surgical operation.

The most common facial blemish that we have to contend with is hypertrichosis, or an unnatural growth of hair. I will not stop to discuss the varieties, etiology, or other factors in this disease. Superfluous hair causes no end of worry to the person so afflicted, especially if a woman, and cases have been reported that have caused such extreme sensitiveness as to bring about a state of melancholia bordering on insanity. Electricity is the only known remedy by which hair can be removed permanently and at the same time leave the parts in such a condition that in time it will appear healthy and like the normal skin. It requires time, patience and skill, but with the natural qualifications and the proper instruments, success is assured. A certain number of hairs will return (from five to twenty per cent.), and these may require repeated removal.

The outfit required is an operating-chair, a galvanic battery, a rheostat, a milliamperemeter, a needle-holder with fine needle, sponge electrode and a pair of epilating forceps. Any good galvanic battery of about 20 cells will answer. The needle used should be very fine,

of flexible steel. The needle-holder need not be arranged with an interrupter, but if it is made so that the needle can be set at different angles it will be a great convenience. A magnifying-glass can also be used, but if one has good eyesight it is better to get accustomed to do the work without lenses.

Place your patient in such a position as to secure the best light; then put the sponge electrode in the patient's hand. The needle is then carefully inserted along the hair into the follicle, and the current is closed by the patient grasping the sponge electrode with the hand. A current of from one-half to two milliamperes is necessary from about fifteen to thirty seconds. If the hair is seized with the epilating forceps it will come out without any resistance. If the hair cannot be removed without resistance or pain, it shows the papilla has not been destroyed, and the needle should remain and the current allowed to pass a little longer. No more than fifty hairs should be removed at one setting, for the work is very severe on the eyes. The hairs should be removed as far apart as possible, to prevent sloughing. After the operation a soothing or slight astringent application can be applied, and the parts bathed twice daily with hot water.

Warts, wens, and small fibromata of the skin can be readily removed by electrolysis without leaving scars or disfiguring the patient. It is best to use the *negative* pole for the needle. The operation is not very painful. A needle-holder with a sharp needle must be used and inserted through the base of the tumor. The growth can be transfixed in various directions, and a current of from two to six milliamperes may be used for a few minutes each time. The tissues turn pale, and frothing occurs around the needle; the growth turns a brownish color, and then dries up and drops off in about ten days, leaving a slightly discolored spot which assumes its natural color in a short time.

Nævi of all kinds, such as wine-marks, fire-marks, strawberry-marks, spider cancer, gingersnaps, bats, moles, etc., can be removed by the galvanic current. In nævus vasculosus the treatment consists in using an electrode consisting of fifteen to twenty needles, very fine and sharp-pointed. The strength of current is best judged by the action on the parts, but a battery of fifteen to twenty cells should be used. The object of this treatment is to cause an inflammation which will occlude the lumina of the capillary vessels, and in this way stop the nourishment of the parts. Where the area is small a single needle can be used with excellent results. The needles are pressed into the skin firmly and quickly, and the negative current passed through about fifteen to thirty seconds. The skin around the needles will swell up in wheals and turn white. This condition, however, soon passes away after the needles are withdrawn. Small crusts are formed, which should not be removed but allowed to fall off naturally.

If one operation does not have the desired effect, it can be repeated in from two to six weeks after we are satisfied as to the result of our work. The skin will be somewhat different from normal, but in time will gain a normal appearance.

Nævi pigmentosi, or pigmentary moles, vary in size from the head of a pin to areas covering large surfaces of the skin. Sometimes they are covered with hair or bristles. Of all facial blemishes this class of deformities are the most annoying to those afflicted with them, as they attract attention and excite unfavorable comment, and in most cases it is a matter of solicitude on the part of the person affected to get rid of the trouble. The object in operation is, of course, to remove the abnormality and not produce a greater deformity. This we can do by electrolysis better than by other means. This treatment is under perfect control, and the only objec-

tion that can be urged against it is that it takes time; but the object to be accomplished, with the results attained, justifies any amount of labor.

If the mole is covered with hairs, they should be removed as directed in treatment of superfluous hair. Then use a current of about five milliamperes, being careful not to use it too strong. For the negative pole, use a needle-holder fitted with a large sponge. The needle is then passed through the mole on a level with the skin. Small bubbles of hydrogen will escape, and the mass turn white along the course of the needle. The needle can then be inserted at different points, until the whole growth has assumed a blanched, frothy appearance, and of soft consistence. This will dry up and drop off in a short time, leaving the spot covered with thin skin, slightly discolored, which gradually assumes the appearance of the surrounding tissue. The operation is not very painful, and there are few people who would not undergo much more pain to be cured of these unsightly blemishes.

Diseases of the skin that attack the face, such as eczema, acne and others, are treated by electricity with gratifying results, but as it would be too lengthy I have devoted myself to *permanent* blemishes. Scars from ulcers, small-pox, and thickening of the skin, can be greatly improved by galvanopuncture.

MEDICINE—ITS HISTORY.

W. S. Battles, M. D., Shreve.

With folded wings our muse in musing sits,
  In contemplation of our theme would ask;
Discouraged thought that o'er our mem'ry flits,
  What shall we do with this unequal task?

To sketch its history would be to write
  The whole biography of the human race;
Record its deeds, delineate its might,
  And in the annals of the world assign its place.

From Æsculapius' ancient mystic time
  To Pasteur's modern brilliant golden age,
Our art and science in unbroken line
  Marks in sublime grandeur the historic page.

From hist'rys dawn to latest date of time
  It led the van of science and of art;
Up learning's rugged hill the first to climb,
  Imparting luster to the head and heart.

No second place in cultured Greece was found
  For him we hold as Physic's honored sire;
Hippocrates stands forth in learning's grade profound,
  None of his age in wisdom ranking higher.

Aye, what philosopher of modern date
  Outshines that ancient Franklin of the east,
Where Aristotle bore on learning's plate
  Rich mental viands for Hellenic feast?

No man that lived, no man that e'er will live,
  Can sway so long the trend of cultured thought
As when the fruitful mind of Galen gave
  That grand Galenic lore for many centuries taught.

And would Brittannia of her great men boast,
  Who greatest good to all mankind had given,
She'd point with pride to Harvey as her most
  Honored, most worthy of a primal place in Heaven.

When Caledonia dons her robes to praise
  The deeds of merit done by honored sons,
To Graves and Abernathy will peans raise,
  And number Lister 'mong illustrious ones.

The land of Bismarck, stolid in its might,
  And slow to celebrate her work in song,
Will sing of Koch and Virchow and the light
  Of Helmholtz's torch his genius bore along.

And could Columbia, latest born of earth,
  Her sons now place on honor's sacred roll,
Fail to record as ones of worthy birth,
  Or place the names of Rush and Warren on her scroll?

If from Egyptian learning's early dawn,
  Through Grecian culture and through Roman art,
Our noble craft has pushed the car of progress on,
  In its great work have always taken part,

May we not feel a pride in what was done,
  Be proud of all our art, may justly boast,
Be glad that each may know that he is one
  Of this grand Ricordian-Sydenham host?

CONSTITUTION AND BY-LAWS

OF THE

OHIO STATE MEDICAL SOCIETY,

ADOPTED AT ZANESVILLE, MAY 16, 1894.

ARTICLE I.

TITLE.

The name of this Association shall be the "OHIO STATE MEDICAL SOCIETY."

ARTICLE II.

OBJECTS.

The objects of this Society shall be the advancement of medical knowledge; the elevation of professional character; the protection of the professional interests of its members; the promotion of all measures adapted to the relief of the suffering, the improvement of the health, and the protection of the lives of the community.

ARTICLE III.

MEMBERS.

SECTION 1. The Society shall consist of *permanent members*, *delegate members*, and *honorary members*. Per-

manent and delegate members only shall be competent to hold office or transact the legislative business of the Society, as hereafter specified.

SEC. 2. Delegate members shall receive their appointments from auxiliary societies. Before admission to a seat they shall pay the regular dues for the year, and file with the Committee on Admission a certificate of delegation, signed by the President and Secretary of the auxiliary society which they represent. Should a delegate not become a permanent member by complying with the requirements of Sec. 3, Art. III., he shall only be entitled to a copy of the Transactions and the privileges of membership for the meeting to which he is accredited.

SEC. 3. All regularly graduated practitioners of medicine in the State of Ohio shall be eligible to permanent membership. Applicants shall be vouched for by two permanent members, or shall present a certificate of membership in an auxiliary society, signed by the President and Secretary of such society, and their election shall require a majority vote at a regular meeting, their eligibility having been reported upon favorably by the Committee on Admission.

Every applicant shall deposit with the Treasurer the sum of $3.00 as a membership fee, and the dues for the current year, if not previously paid, which sums shall be returned if his application is rejected.

SEC. 4. Members of an auxiliary society, upon the presentation of a certificate of membership, signed by the President and Secretary of such society, and complying with the provisions of Art. III., Sec. 3, shall be eligible to membership, although not in attendance on the meeting.

SEC. 5. The Society may elect eminent physicians, not residents of Ohio, as honorary members. They shall

be exempt from payment of dues and assessments, and shall be presented with a copy of the Transactions.

SEC. 6. Members who have paid dues for thirty consecutive years shall be known as *life members*, and be exempt from dues and assessments.

SEC. 7. Members who are delinquent in dues or assessments shall not be entitled to a copy of the Transactions. The non-payment of dues for three years shall forfeit membership. The Treasurer shall include in his annual report the names of those who are delinquent for three years, but this list shall not be printed in the Transactions.

SEC. 8. The names of all permanent, delegate and honorary members shall be annually printed in the Transactions, in their respective classes.

ARTICLE IV.

AUXILIARY SOCIETIES.

SECTION 1. Any county or other local medical society in the State, whose Constitution recognizes the Code of Ethics of the American Medical Association, may become auxiliary to this Society, and shall be entitled to one delegate for every five members, and one additional for more than half that number.

SEC. 2. Every auxiliary society shall enforce the observance, by its members, of the Code of Ethics adopted by this Society.

SEC. 3. Any member of an auxiliary society, who is also a member of this Society, who shall feel aggrieved at the action of such auxiliary society in enforcing discipline, shall have the right to appeal to this Society.

SEC. 4. The Secretary of each auxiliary society, not less than one month preceding each annual meeting of this Society, shall make a full and correct catalogue, with postoffice addresses, of its officers and members and transmit the same to the Secretary. If the name of a member is omitted from this catalogue that was contained in the last preceding catalogue, the reason for such omission must be given.

SEC. 5. In case of the death of any of its members, who are also members of this Society, it shall be the duty of the Secretary of each auxiliary society to transmit to the Secretary of this Society a suitable obituary notice for publication.

ARTICLE V.

OFFICERS.

SECTION 1. The officers of this Society shall be a President, four Vice-Presidents, Secretary, Assistant Secretary, and a Treasurer and Librarian.

SEC. 2. At the first session of each year the President shall appoint a committee of five, which shall present to the Society nominations for all elective offices except that of President. The officers shall be elected by a ballot vote of a majority of all the members present, and shall enter upon their duties at the close of the meeting at which they are elected, and shall serve one year, or until their successors are elected.

SEC. 3. All vacancies in office, occurring in the interim of the meetings, shall be filled by appointment by the President.

ARTICLE VI.

DUTIES OF OFFICERS.

SECTION 1. The President shall preside over the meet-

ings, deliver an address, and perform such other duties as custom and parliamentary usage may require.

SEC. 2. The Vice-Presidents shall assist the President in the performance of his duties, and, in his absence, preside over the meetings, in the order of their seniority.

SEC. 3. The Secretary shall keep correct minutes of the proceedings of the Society, and furnish the same to the Committee on Publication, notify committees and society delegates of their appointments, take charge of all manuscripts, papers, etc., read at the various meetings, and transfer the same to the Committee on Publication. He shall give due notice of the annual meetings, and give official notice to all auxiliary societies of resolutions, etc., passed by this Society that have reference to the said societies, and also notify them of the time for making their reports to this Society, and perform all other duties which the common usage of corporate bodies may require. His salary shall be one hundred and twenty-five dollars per annum.

SEC. 4. The Assistant Secretary shall assist the Secretary in the performance of his duties, as the latter may require, and act for him in his absence. His traveling and hotel expenses shall be borne by the Society.

SEC. 5. The Treasurer and Librarian shall receive all moneys due the Society, pay all bills countersigned by the Secretary, keeping an itemized account of all receipts and expenditures, with vouchers, and make a full report at each annual meeting. He shall have charge of all property belonging to the Society, the care of which is not otherwise provided for, keeping a complete catalogue of the same, and report the condition of this department at the annual meeting. He shall give bond for the faithful performance of his duties in the sum of $1,000, with

two sureties, said bond to be approved by the Committee on Finance, and deposited with the Secretary. His salary shall be one hundred and twenty-five dollars per annum.

SEC. 6. The officers shall deliver all records, books, funds and other property belonging to their several offices, to their successors when the latter enter upon the discharge of their respective duties.

ARTICLE VII.

COMMITTEES.

The committees of this Society shall be Standing and Temporary. Standing Committees are those whose duties continue from year to year. They shall each consist of five members, and, unless otherwise specified, shall be elected by the society, one member being elected each year. The Standing Committees shall be: Committees on Arrangements, Finance, Admission and Medical Societies, Ethics, Publication, and Medical Legislation. Temporary Committees are those whose functions cease with the meeting at which they are appointed. They shall be appointed by the President as the necessity for their existence arises.

ARTICLE VIII.

DUTIES OF COMMITTEES.

SECTION 1. The Committee on Arrangements shall, if no sufficient reasons prevent, be mainly composed of members at the place where the next annual meeting is to be held. It shall provide suitable rooms and accommodations for the meeting, and, in all matters not otherwise provided for, superintend and protect the general interests of the Society. This Committee shall be appointed annually by the President.

SEC. 2. The Committee on Finance shall fix the amount of the yearly dues and special assessments, audit the account of the Treasurer, and have general charge of the monetary affairs of the Society.

SEC. 3. The Committee on Admission and Medical Societies shall examine and pass upon the qualifications of delegates, and applicants for permanent membership, and the application for admission of auxiliary societies, and perform such other duties as may devolve upon it.

SEC. 4. The Committee on Ethics shall examine and report for the action of the Society, all cases of appeal from the auxiliary societies, and such other matters as may be referred to it by the Society. If any member or auxiliary society shall be charged, in writing, with any violation of the provisions of this Constitution and By-Laws, or with unprofessional conduct, a copy of such charges shall be furnished to him or its officers, and the accused and accuser cited to appear, when the Committee shall proceed to hear the case, reserving its decision to be reported to the Society; except that the case of any member may be referred for adjudication to the auxiliary society of which he is a member, and from the decision of the auxiliary society an appeal may be carried to this Society.

Reports from this Committee, when unanimous, shall be acted upon without debate.

SEC. 5. The Committee on Publication, of which the President and Secretary shall be members *ex officio*, shall examine all papers presented to the Society, and have printed in the Transactions such as it deems worthy of publication.

SEC. 6. The Committee on Legislation shall watch the course of State legislation on medical subjects, and take charge of such matters as shall be referred to it by

the Society. All proposed legislation offered by any member of this Society, and all resolutions touching medical legislation, shall be referred to this Committee, which shall make a report thereon to this Society as soon as possible.

ARTICLE IX.

DELEGATES.

SECTION 1. The Delegates appointed by this Society to the American Medical Association or other societies, shall report briefly, in writing, through their Chairman, any action of the societies to which they were respectively delegated, which, in their judgment, merits the attention of this Society.

ARTICLE X.

MEETINGS.

SECTION 1. The meetings of this Society shall be held annually, at such time and place as the Society may appoint: *Provided*, that special meetings may be called at any time by the President, on the written request of twenty-five members. Due notice of all the meetings shall be given by the Secretary, and in case of a special meeting the object for calling said meeting shall be distinctly set forth in the notice.

SEC. 2. Twenty-five members shall constitute a quorum for the transaction of business.

ARTICLE XI.

CODE OF ETHICS.

The Society adopts, as a part of its regulations, the Code of Ethics of the American Medical Association.

Article XII.

AMENDMENTS.

Every proposal for amending the Constitution shall be made in writing; and if such an amendment receives a majority of four-fifths of the members present, it shall be adopted; but otherwise, the amendment shall lie over until the next meeting, when it may be adopted by a majority of two-thirds of the members present.

Article XIII.

Nothing in this Constitution shall be so construed as to deprive any one now a member of this Society of any rights or privileges held by him before the adoption of this Constitution.

BY-LAWS.

I.

ORDER OF BUSINESS.

1. The President, or in his absence, one of the Vice-Presidents, shall call to order, or, in case of the absence of all these officers, a chairman shall be appointed *pro tempore.*

2. Reading of minutes. Report of the Committee of Arrangements (on first day).

3. President's address (afternoon of second day).

4. Election of officers (afternoon of second day).

5. Selection of a place and time for the next meeting (afternoon of second day).

6. Business which requires early consideration.

7. Reports of Standing Committees.

8. Reports from Delegates to the American Medical Association, and other Societies.

9. Written communications on medical subjects (papers).

10. Oral communications.

11. New business.

12. Unfinished and miscellaneous business.

13. Adjournment.

II.

In filling blanks, the longest time and the largest sum shall be put first.

III.

Any three members may call for the ayes and nays.

IV.

All questions of order, not especially provided for, shall be decided according to Cushing's Manual of Parliamentary Practice.

V.

Not to exceed ten minutes shall be allowed for the reading of any paper.

VI.

No paper shall occupy over thirty pages of the Transactions.

VII.

All reports, papers and addresses presented to this Society by its members are the property of the Society, and shall be referred, without motion and without recommendation, to the appropriate committee; and it shall be considered a misdemeanor for the author of any such report or paper to permit the same to be published without giving due credit to this Society.

VIII.

No speaker shall be allowed to speak a second time, on the same subject, without consent of the Society.

IX.

The time allowed each speaker shall not exceed ten minutes, except by general consent.

X.

The motion to adjourn, to lay on the table, or for the previous question, shall be decided without debate.

XI.

The motion for the previous question, if decided in the negative, shall have no effect on the main question.

XII.

Any of these By-Laws may be suspended at any time by a three-fourths vote of the members present. Every proposed amendment must be offered in writing; if it receives a four-fifths vote of the members present, it shall be adopted; but otherwise it shall lie over until the next meeting, when it may be adopted by a majority of two-thirds of the members present.

MEMBERS OF THE

OHIO STATE MEDICAL SOCIETY.

CAPITALIZED: Life members.

Italicized: Deceased since last meeting.

Local Secretaries will please notify the Secretary of errors or omissions, and forward obituary notices with their annual catalogues.

Abbott, C. N., Academy of Medicine----------Cincinnati, 1892
Ackley, George B., Meigs County Medical Society----Pomeroy, 1892
Adams, P. N., Montgomery County Medical Society---Dayton, 1885
Adair, Samuel G., Washington Co. Medical Society----Beverly, 1893
Albl, Michael A., Cuyahoga Co. Medical Society----Cleveland, 1892
Alcorn, E. G., Gallia Co. Medical Society----------Gallipolis, 1895
Alcorn, John B., Gallia County Medical Society-- ---Gallipolis, 1894
Aldrich, Daniel B., Ashtabula Co. Medical Society-----Harbor, 1892
Aldrich, Chas. J., Cuyahoga Co. Medical Society----Cleveland, 1891
Allard, Lorenzo D., Pike County Medical Society---------Flat, 1894
Allen C. O----------Haydenville, 1895
Allen, Dudley P., Cuyahoga Co. Medical Society----Cleveland, 1885
Allen, George M., Academy of Medicine----------Cincinnati, 1892
Allen, Harlan P., Academy of Medicine----------Columbus, 1884
Allen, S. E., Academy of Medicine----------Cincinnati, 1892
Andre, Orrin C., Hempstead Mem. A. of M----------Waverly, 1888
Archer, J. R----------N. Baltimore, 1892
Armentrout, Lyman W----------Mt. Vernon, 1892
Arms, C. C., Cuyahoga Co. Medical Society---------Cleveland, 1892
Armstrong, C. L., Academy of Medicine----------Cincinnati, 1892

Axline, Chas. Z., Hild. Dist. Medical Society---- Fultonham, 1884
Ayres, S. C., Academy of Medicine----------Cincinnati, 1877
Backus, L. C., Tri-State Medical Society----------Fayette, 1895
Bain, Frank D., Northwestern Ohio Medical Ass'n-----Kenton, 1885
Baker, A. R., Cuyahoga County Medical Society----Cleveland, 1886
Baker, J. P., Hancock County Medical Society--------Findlay, 1891
Baker, William O., N. E. O. M. A ----------Louisville, O., 1882
Baldwin, J. F., Academy of Medicine----------Columbus, 1875
Ballinger, J. B----------Webster, 1880
Bange, Theo., Academy of Medicine------ --------Cincinnati, 1892
Barnes, Noble P--611 Maryland Ave., N. E., Washington, D. C. 1894
Barnes, J. W., Ross County Medical Society--------Columbus, 1892
Barnes, T. S., Ross County Medical Society--------Chillicothe, 1890
Barnes, W. T., N. E. O. M. A----------Wooster, 1891
Barnhill, James U., Academy of Medicine---------Columbus, 1884
Barrere, D. M., Montgomery Co. Medical Society------Dayton, 1884
Barton, T. J., Muskingum Co. Medical Society------Zanesville, 1881
Bates, F. L., Allen County Medical Society---- ----------Lima, 1890
BATTLES, W. S., N. C. O. M. A----------Shreve, 1858
Bauer, M. M., N. E. O. M. A----------Lake, 1884
Beach, T. D., Clarke County Medical Society---------Catawba, 1884
BEACH, J. N., Central Ohio M. S., Madison Co------Jefferson, 1854
Beard, H. C----------Portsmouth, 1892
Beardsley, C. E., N. W. O. M. A---------- --------Ottawa, 1869
Becker, Bernard, Toledo Medical Association----------Toledo, 1892
Beck, John S., Montgomery County Medical Society----Dayton, 1879
Beckwith, Seth W., Toledo Medical Association--------Toledo, 1892
Beers, A. M., Tuscarawas Co. Medical Society, Newcomerstown, 1882
Bell, A. E., Muskingum County Medical Society----Zanesville, 1892
Belt, R. C., Miami Valley Medical Society----------Milford, 1892
Benner, C. T., N. W. O. M. A----------Tiffin, 1891
Bennett, W. C. (Morrow County)----------Iberia, 1892
Bennett, C. A., Clermont Co. Medical Society----Withamsville, 1892
Bessey, J. Mortimer, Toledo Medical Association------Toledo, 1887
Bethauser, C. M., Academy of Medicine----------Columbus, 1895
Bevington, H. S., Crawford Co. Med. Society--Sulphur Springs, 1892

Bivans, W. A., Brown County Medical Society-----New Hope, 1892
Bird, Edw. H., N. W. O. M. A----------Dupont, 1892
Black, James R., withdrawn----------Newark, 1892
Blackburn, M. E., Academy of Medicine----------Columbus, 1895
Blaine, Harry G., N. W. O. M. A----------Toledo, 1892
Blair, B. H., Warren County Medical Society---------Lebanon, 1892
Blake, F. W., Academy of Medicine----------Columbus, 1892
Blake, William H., Central Ohio Medical Society---Shadeville, 1878
Bland, J., Crawford County Medical Society---------Bucyrus, 1892
Blankenhorn, H., U. M. A. N. E. O.----------Orrville, 1895
Bleile, A. M., Academy of Medicine----------Columbus, 1882
Bodman, Lewis H., Toledo Medical Association--------Toledo, 1892
Boerstler, George W----------Lancaster, 1870
Bond, John W., Toledo Medical Association---------Toledo, 1892
Boggess, E. M., Fayette Co. Med. Society---Washington C. H., 1892
Bohl, John, Sr., Washington Co. Med. Society-----Watertown, 1892
Bonfield, C. L., Academy of Medicine----------Cincinnati, 1892
Bonner, C. A., Montgomery Co. Medical Society-------Dayton, 1892
Bonner, Horace, Montgomery Co. Medical Society-----Dayton, 1890
Boone, D. W., Belmont County Medical Society------Bellaire, 1890
Boone,Jos. S., Belmont County Mecical Society, Powhatan Point, 1892
Bowen, A. H., Academy of Medicine----------Columbus, 1878
Boylan, A. (Union County)----------Milford Center, 1878
Boyd, James P., N. E. O. M. A----------Akron, 1892
Brady, M. B., Academy of Medicine----------Cincinnati, 1892
Brandenburg, F. D., Cuyahoga Co. Medical Society--Cleveland, 1892
Brannan, T. H., Tuscarawas Co. Medical Society--Canal Dover, 1884
Brashear, B. B., Cuyahoga County Medical Society--Cleveland, 1886
Brayton, Asa, N. W. O. M. A.----------Carey, 1892
Brent, C. P., Academy of Medicine----------Cincinnati, 1892
BRICKER, W. R.----------Shelby, 1848
Brigham, O. S., Toledo Medical Association----------Toledo, 1892
BRINKERHOFF, D. H., Sandusky Co. Med. Society--Fremont, 1853
Brockett, A. J.----------Cleveland, 1874
Brown, E. O. S., Pike Co. Medical Society----------Beaver, 1895
Brown, H. M., Highland County Medical Society---Hillsboro, 1882

Brown, J. A.----------Germantown, 1886
Brown, Joseph E., Academy of Medicine----------Cincinnati, 1892
Brown, J. E., Academy of Medicine----------Columbus, 1892
Bruehl, Gust., Academy of Medicine----------Cincinnati, 1892
Brundage, L. A., Greene County Medical Society-------Xenia, 1892
Brush, Edmund C., Hildreth District Med. Society--Zanesville, 1878
Buckingham, John M., Clarke Co. Medical Society--Springfield, 1885
BUCKNER, J. H., Academy of Medicine----------Cincinnati, 1863
Buechner, W. L., Mahoning Co. Medical Society----Cleveland, 1879
Bunn, Jas. W , Adams County Medical Society---West Union, 1872
Bunts, Frank E., Cuyahoga Co. Medical Society----Cleveland, 1892
Burrows, S. S., Ashtabula Co. Medical Society-----Columbus, 1895
Butler, Geo. O.----------Cleveland, 1870
Butler, G. W.----------Columbus, 1869
Caldwell, Jno. L., Pike County Medical Society------Waverly, 1894
Caldwell, J. S., Academy of Medicine----------Cincinnati, 1892
Caldwell, William, Sandusky Co. Medical Society----Fremont, 1886
Calhoun, W. M., Union M. A. Columbus-------East Liverpool, 1892
Callinan, D. F., Academy of Medicine----------Columbus, 1892
Calvin, J. H., Erie County Medical Society----------Salem, 1891
Campbell, Oscar B., Cuyahoga Co. Medical Society--Cleveland, 1892
Carlisle, Irwin S., Cuyahoga Co. Medical Society----Glenville, 1892
Carmichael, W. A., Miami Valley Med. Society------Loveland, 1871
Carpenter, E. G., Cuyahoga Co. Medical Society----Cleveland, 1892
Carpenter, Julia W., Academy of Medicine---------Cincinnati, 1879
Carrick, Anthony L., Academy of Medicine--------Cincinnati, 1871
Carroll, Thos. M., Clarke Co. Medical Society------Springfield, 1892
Carrothers, M. M , Hancock Co., Medical Society------Findlay, 1892
Carson, Archibald I., Academy of Medicine--------Cincinnati, 1892
Carson, Frank D., Holmes County Medical Society----Benton, 1892
Case, Freeman D., Ashtabula County M. S.---------Ashtabula, 1886
Chadwick, Leroy S., Cuyahoga Co. Med. Society----Cleveland, 1892
Chamberlin, Chas. S., Trumbull Co. Medical Society---Kinsman, 1892
Chamberlin, D. P., Toledo Medical Association--------Toledo, 1874
Chapman, Byron, N. E O. M. A.----------Copley, 1885
Chapman, Wm. C., Toledo Medical Association--------Toledo, 1875

Chesney, John A., Crawford Co. Medical Society-----Bucyrus, 1892
Chidester, C. W----------Delaware, 1895
Chisholm, H., Marion Co. Medical Society----------Marion, 1895
Clapp, Harold T., Cuyahoga County Medical Society-Cleveland, 1891
Clark, C. F., Academy of Medicine----------Columbus, 1885
Clarke, Ida, Mahoning County Medical Society--Youngstown, 1889
Clark, Frank S., Cuyahoga County Medical Society--Cleveland, 1892
Clark, J. Ross, N. W. O. M. A----------Bluffton, 1892
Clark, John H., Champaign Co. Med. Society--Mechanicsburg, 1869
Clark, J. N., Fayette County Medical Society---Madison Mills, 1892
Clark, Myron S., Mahoning Co. Medical Society--Youngstown, 1879
Cleaver, J. V., Summit County Medical Society--------Akron, 1892
Clouse, Geo. M , Academy of Medicine----------Columbus, 1892
Cobbs, Chas----------New Athens, 1889
Cole, A. P., Ross Co. Medical Society----------Chillicothe, 1895
Coleman, N. R., Academy of Medicine----------Columbus, 1875
Coldham, Wm. W., Toledo Medical Association--------Toledo, 1892
Collamore, George A., Toledo Medical Association-----Toledo, 1880
Collins, B. F., E. Ohio Medical Association----------Toronto, 1895
Collins, Milton H., Clarke Co. Medical Society--So. Charleston, 1890
Collins, John W----------Steubenville, 1894
Colville, George H. (Belmont County)----------Harrisville, 1887
Combs, John S., Clermont County Medical Society-Owensville, 1892
Comyges, C. S., Academy of Medicine ----------Cincinnati, 1892
Conklin, W. J., Montgomery Co. Medical Society------Dayton, 1868
Conard, George R., Clinton Co. Medical Society--New Vienna, 1890
Conden, John F., Miami County Medical Society-----Morrow, 1892
Cone, J. E., Mahoning County Medical Society---Youngstown, 1889
Conn, Eli, Summit County Medical Society ----------Akron, 1887
Conner, Phineas S., Academy of Medicine ---------Cincinnati, 1868
Cook, G. F., Butler County Medical Society ----------Oxford, 1885
Cook, J. E., Cleveland Medical Society ----------Cleveland, 1895
Cook, Thomas M., Erie County Medical Society-----Sandusky, 1892
Cooper, Albert, Central Ohio Medical Society-------Columbus, 1881
Cooperrider, C. A., Academy of Medicine ----------Columbus, 1892
Cope, A. L., Union County Medical Society----------Winona, 1892

Cope, E. C., Belmont Co. Medical Society----------Cope, 1895
Corbin, Lee, Montgomery County Medical Society---- Dayton, 1892
Corlett, Wm. T., Cuyahoga County Medical Society-Cleveland, 1882
Corson, O. M., Butler County Medical Society ----Middletown, 1879
Cosgrove, Thomas, Toledo Medical Association --------Toledo, 1892
Costello, J. W., Shelby County Medical Society-------Loramie, 1892
COTTON, J. D., Washington Co. Medical Society-----Marietta, 1852
Courtright, Alva P ----------Circleville, 1871
Courtright, Geo. S----------Lithopolis, 1867
Cox, J. M., Ross County Medical Society---------South Salem, 1877
Craig, J. Harvey, North Central Ohio M. S----------Mansfield, 1886
Crane, A. M., Marion County Medical Society---------Marion, 1881
Craver, S. Belle, Toledo Medical Association----------Toledo, 1892
Creps, Adolphus H., Allen Co. Me lical Society--West Minster, 1892
Crile, Geo. W., Cuyahoga County Medical Society--Cleveland, 1892
Crider, Chas. L., Muskingum Co. Medical Society--Zanesville, 1894
Crossland, Jeff. C., Muskingum Co. Med. Society---Zanesville, 1890
Crump, A. A., Jr., Holmes Co. Medical Society---Millersburg, 1892
Curry, John H., Toledo Medical Association----------Toledo, 1892
Curry, Frank C., Cincinnati Academy of Medicine----Milford, 1892
Cushing, Edward F., Cuyahoga Co. Med. Seciety----Cleveland, 1892
CUSHING, H. K., Cuyahoga Co. Medical Society---Cleveland, 1857
Dandridge, N. Pendleton, Academy of Medicine----Cincinnati, 1871
Davidson, N. P., Union County Medical Society------Hilliards, 1890
Davison, Jno. F., Northern Ohio Med. Society---No. Amherst, 1893
Davis, Ben., Clark Co. Medical Society----------New Carlisle, 1895
Davis, J. T., Muskingum County Medical Society---Zanesville, 1892
Davis, Clark W., Academy of Medicine----------Cincinnati, 1892
De La Barre, Paul----------Port Clinton, 1892
Death, H. J., Warren County Medical Society--------Franklin, 1892
DeCourcy, W. E., Academy of Medicine----------Cincinnati, 1892
Deemer, H. E., Erie County Medical Society----------Castalia, 1892
Denman, Wm. C., Marion Co. Medical Society--------Marion, 1882
Dennis, W. H----------Burbank, 1895
Deuschle, W. D., Academy of Medicine----------Columbus, 1885
DeVilbiss, Allen, Toledo Medical Association----------Toledo, 1887

Dick, W. L., Academy of Medicine----------Columbus, 1892
Dickey, Thos. A., Butler County Medical Society--Middletown, 1879
Dine, C. L., N. W. O. M. A----------Minster, 1893
Dixon, M. F., Academy of Medicine----------Columbus, 1895
Dixon, W. A., Brown County Medical Society---------Ripley, 1889
Dolina, T. F., Montgomery County Medical Society----Dayton, 1892
Donnelly, James, Toledo Medical Association----------Toledo, 1892
Dorman, H. W., Ashtabula County Medical Society---Harbor, 1886
Dorschug, F. B., Academy of Medicine----------Cincinnati, 1892
Dorsey, Jos. F----------Dresden, 1894
Downs, Samuel----------Waterville, 1876
Dunlap, C. O----------Athens, 1881
Duncan, A. M., Crawford County Medical Society----Bucyrus, 1886
Duncan, Jas. A., Toledo Medical Association----------Toledo, 1874
Dunham, J. M., Academy of Medicine----------Columbus, 1895
Dunham, W. H., Academy of Medicine----------Cincinnati, 1892
Dutton, C. F., Cuyahoga County Medical Society---Cleveland, 1880
Eakins, John, Gallia County Medical Society----------Patriot, 1894
Eddy, Chas. W., Washington Co Medical Society----Marietta, 1888
Edwards, R. C----------W. Carlisle, 1895
Eichberg, Jos., Academy of Medicine----------Cincinnati, 1882
Ellsberry, W. W., Brown County Medical Society--Georgetown, 1892
Ellsberry, A. M., Brown County Medical Society--Georgetown, 1892
Ely, J. S., Belmont County Medical Society-------Barnesville, 1892
Emerick, E. J., Central Ohio Medical Society-------Columbus, 1895
Emmons, D. R., Champaign Co. Med. Society----N. Lewisburg, 1895
Entrekin, F. W., Hancock County Medical Society----Findlay, 1892
Ervin, N. B., Sandusky County Medical Society---Gibsonburg, 1891
Esch, Jos. P., Erie County Medical Society----------Huron, 1892
Evans, A. E., Central Ohio Medical Society---------Columbus, 1882
Evans, Otho, Warren County Medical Society--------Franklin, 1892
Evans, George B., Montgomery Co. Medical Society---Dayton, 1892
Everts, Orpheus, Academy of Medicine----------Cincinnati, 1885
Everett, Abner B. (Lorain County)----------Kipton, 1893
Ewing, M. J., Hancock County Medical Society-------Findlay, 1892
Faber, Chas. A., Toledo Medical Association----------Toledo, 1892

Fackler, John E. ..... Versailles, 1879
Fann, Geo. C., Erie County Medical Society ..... Kelly's Island, 1892
Farnsworth, G. B., Cleveland Medical Society ..... Cleveland, 1895
Fassig, J. M., Muskingum County Medical Society .. Zanesville, 1893
Fels, Geo. W., Academy of Medicine ..... Cincinnati, 1892
Fella, F. J., Toledo Medical Association ..... Toledo, 1892
Fisher, A. W., Toledo Medical Association ..... Toledo, 1892
Fisher, W. H., Toledo Medical Association ..... Toledo, 1892
Fisher, P. ..... Cincinnati, 1892
Fitzpatrick, T. V., Academy of Medicine ..... Cincinnati, 1890
Fitzsimmons, J. F., Crawford Co. Medical Society ..... Bucyrus, 1892
Fletcher, Mordecai H., Academy of Medicine ..... Cincinnati, 1892
Flemming, J. C. ..... Carlisle, 1892
Flower, W. R., Ashtabula Co. Medical Society ..... Ashtabula, 1895
Floyd, J. C. M., Jefferson Co. Medical Society ..... Steubenville, 1884
Foertmeyer, C. H., Academy of Medicine ..... Cincinnati, 1892
Fogel, L. J. ..... Cincinnati, 1892
Foltz, Tobias H., N. W. O. M. A. ..... Lima, 1892
Folk, Peter ..... Deavertown, 1894
Forchheimer, F., Academy of Medicine ..... Cincinnati, 1892
Formorin, J. L., Clermont County Medical Society .. Marathon, 1892
FORBES, S. F., Toledo Medical Association ..... Toledo, 1856
Foshay, P. M., Cleveland Medical Society ..... Cleveland, 1882
Foster, G. F., Ross County Medical Society ... Kingston Centre, 1882
Fowler, Silas W. ..... Delaware, 1873
Fox, J. F., Tuscarawas Co. Med. Society ..... New Philadelphia, 1895
Fraker, H. C., Academy of Medicine ..... Columbus, 1895
Francis, A. W., Brown County Medical Society ..... Ripley, 1892
Fraser, J. M., Cuyahoga County Medical Society ..... Cleveland, 1892
Fraunfalter, J. ..... Canton, 1886
Freeman, Leonard, Academy of Medicine ..... Denver, 1892
French, Herbert W. ..... Cincinnati, 1892
French, Jas. M., Academy of Medicine ..... Cincinnati, 1892
FULLER, S. W. ..... Bellefontaine, 1853
Fullerton, Erskine B., Academy of Medicine ..... Columbus, 1894
Gage, Rawson S., Washington Co. Medical Society ..... Qualey, 1892

Gahm, J. L., Hempstead Academy of Medicine.....Jackson, 1895
Gale, George T., Washington Co. Medical Society....Newport, 1888
Galloway, C. M., Greene County Medical Society.....Xenia, 1888
Galloway, W. A., Greene County Medical Society.....Xenia, 1890
Gardiner, W. G., N. W. O. M. A.....Toledo, 1892
Gaune, A. J., Erie County Medical Society.....Sandusky, 1870
GAY, N.....Columbus, 1848
Gehritt, T. M., N. W. O. M. A.....Deshler, 1892
Getzloff, B., Shelby Co. Medical Society .....Wapakoneta, 1895
Geyer, Jos. L., Muskingum County Medical Society..Norwich, 1892
Gibbon, H. B., N. W. O. M. A.....Tiffin, 1891
Gifford, Wm. R., Toledo Medical Association.....Toledo, 1892
Gillette, Wm. J., Toledo Medical Association.....Toledo, 1892
Gilliam, D. Tod., Academy of Medicine.....Columbus, 1873
Glenn, W. W., Highland Co. Medical Society.....Hillsboro, 1895
Goebel, Anna M., Allen County Medical Society.....Lima, 1892
Goetz, F. E., Cuyahoga County Medical Society....Cleveland, 1892
Goodhue, Geo., Montgomery County Medical Society..Dayton, 1884
Goodson, John W.....Sterling, 1874
Goode, B. P., Academy of Medicine (withdrawn)...Cincinnati, 1892
Gores, F. C., Academy of Medicine.....Cincinnati, 1892
Gordon, O. F., Cuyahoga County Medical Society..Cleveland, 1892
Gordon, Patrick A.....Junction City, 1894
GORDON, T. W., Brown Co. Medical Society.....Georgetown, 1849
Goss, C. W.....Lancaster, 1895
Goss, J. H., Central Ohio Medical Society.....Lancaster, 1884
Graham, Jno. C., Academy of Medicine.....Columbus, 1892
Graefe, Wm., Erie County Medical Society.....Sandusky, 1874
Graefe, Chas., Erie County Medical Society.....Sandusky, 1891
Granger, Francis M., Highland Co. Medical Society...Russell, 1881
Gray, Francis C., Montgomery Co. Medical Society....Dayton, 1894
Green, Henry S. (Morrow Co.).....Cardington, 1878
Greene, D. W., Montgomery Co. Medical Society.....Dayton, 1882
Grimm, Adolph, Academy of Medicine.....Cincinnati, 1892
Groves, J. E., Tuscarawas Co. Medical Society...Uhrichsville, 1884
uerin, Z. F., Central Ohio Medical Society.....Columbus, 1884

Gue, Virgil H. (Perry County)----------New Lexington, 1894
Guiss, W. H., Crawford Co. Medical Society----------Tiro, 1895
Hahn, H. H., Mahoning Co. Medical Society-----Youngstown, 1892
Haldeman, Jno. S., Muskingum Co. Med. Society---Zanesville, 1885
Hall, Willis W., Clarke County Medical Society----Springfield, 1882
Hall, Rufus B., Academy of Medicine----------Cincinnati, 1884
Hall, C. T., Warren County Medical Society----------Mason, 1892
Hamann, C. H., Cleveland Medical Society---------Cleveland, 1895
Hamer, W. W., Am. Medical Association--------Bellefontaine, 1895
Hamilton, Horatio A., Wood Co. Medical Society--Perrysburg, 1886
Hamilton, W. D., Academy of Medicine----------Columbus, 1886
Hamilton, C. S., Academy of Medicine ----------Columbus, 1891
HAMILTON, J. W., Academy of Medicine---------Columbus, 1849
Hancock, W. D., Butler County Medical Society------Melville, 1892
Hart, Romeyn B., Jr., Washington Co. Med. Society--Marietta, 1892
Hartman, Geo. W., N. W. O. M. A.----------Wauseon, 1887
Hartman, S. D., Miami Co. Medical Society---Tippecanoe City, 1874
Hardy, Martin V., Washington Co. Med. Society-----Marietta, 1892
Hart, C. S., Columbus Medical College----------Marietta, 1895
Hart, Samuel, Washington Co. Medical Society------Marietta, 1887
Hardy, John C., Washington Co. Medical Society----Marietta, 1886
Harrison, E. B., N. W. O. M. A.----------Napoleon, 1869
HARMON, JULIAN, Trumbull Co. Med. Society-----Warren, 1857
Harmon, J. D., Trumbull Co. Medical Society--------Warren, 1895
HART, B. F., Washington Co. Medical Society-----Marrietta, 1854
Hasencamp, Oscar, Toledo Medical Association--------Toledo, 1891
Hathaway, Harrison, Toledo Medical Association-East Toledo, 1874
Hatch, Chas. A.----------Newark, 1893
Hawley, Edwin P., Cuyahoga Co. Med. Society-----Cleveland, 1892
Hayes, J. D., Perry Co. Medical Society----------Somerset, 1895
Haynes, J. T., Erie County Medical Society--------Sandusky, 1893
Haynes, J. Purcell, Toledo Medical Association--------Toledo, 1892
Heaton, Townsend, Academy of Medicine----------Aberdeen, 1892
Heard, Eugene N., N. W. O. M. A.----------Sandusky, 1892
Heffner, G. W., Starling Medical College----------Circleville, 1895
Heiter, Carl, Erie County Medical Society ----------Sandusky, 1875

Heidrick, Louis W., Toledo Medical Association-------Toledo, 1892
HENDERSON, D. W.------ ----------Marysville, 1856
Henderson, Robert, Champaign Co. Medical Society--Urbana, 1892
Henderson, Geo. W., N. W. O. M. A.----------West Cairo, 1892
Henderson, H. E., Cuyahoga Co. Med. Society-----Cleveland, 1892
Hendly, F. W., Academy of Medicine----------Cincinnati, 1892
Henry, A. G., N. W. O. M. A.----------North Baltimore, 1892
Hendrixson, Hugh, Academy of Medicine---------Columbus, 1868
Herrick, H. J., Cuyahoga Co. Medical Society------Cleveland, 1868
Herrick, H. B., Cuyahoga Co. Medical Society------Cleveland, 1895
Hersh, E. G., Hancock County Medical Society------McComb, 1892
Hewetson, H. L., Tuscarawas Co. Med. Society----Urichsville, 1895
Hewetson, Alex H. (Belmont County)---- ----St. Clairsville, 1894
Hiestand, E. B., N. W. O. M. A.----------Kenton, 1884
Hillbish, Fred S.---------- ----------Fremont, 1878
Hill, Frank E., Clemont Co. Med. Society---Mt. Auburn, Ky., 1892
Hill, Wm. W., Wood County Medical Society--------Weston, 1892
Hill, N. S., Clermont County Medical Society---------Neville, 1866
Hillhowitz, Wm., Academy of Medicine,------ -----Cincinnati, 1892
Himes, Isaac N., Cuyahoga Co. Medical Society-----Cleveland, 1877
Hines, J. Arthur----------Van Wert, 1879
Hiner, S. B , Allen County Medical Society---------- Lime, 1874
Hinckley, H. D., Butler County Medical Society-------Oxford, 1887
Hintzelman, C., Cuyahoga Co. Medical Society-----Cleveland, 1892
Hise, A. H., N. C. O. M. S.--------- --------New Washington, 1890
Hixon, M. M., N. W. O. M. A.----------Dupont, 1887
Hobbs, Wilbert A., Union Co. Med. Society---East Liverpool, 1889
Hobson, John A., Belmont Co. Medical Society------Flushing, 1891
Hoge, W. D., Eastern Ohio Medical Society------Portland Sta., 1895
Hoege, G. L., N. W. O. M. A.----------Fostoria, 1895
Hoeltge, A. E., Academy of Medicine----------Cincinnati, 1892
Hoff, Jos. W., Meigs County Medical Society--------Pomeroy, 1872
Holliday, W. W., Cuyahoga Co. Medical Society-- Cleveland, 1892
Holliday, Benj. W., Cuyahoga Co. Medical Society-- Cleveland, 1875
Holcomb, Leroy S.----------Pennville, 1894
Holdren, G. W., Fayette Co. Medical Society----Bloomingburg, 1892

Holmann, A. W. ----------Circleville, 1895
Holmes, C. R., Academy of Medicine----------Cincinnati, 1892
Holston, J. G. F., Muskingum Co. Medical Society--Zanesville, 1892
Homes, W. W. ----------Columbus, 1895
Hoover, Collins M., Union Medical Society----------Alliance, 1885
Hoover, Thos. C., Academy of Medicine----------Columbus, 1891
Hoover, Albert, N. E. O. M. S.----------Akron, 1892
Hoppe, H. H., Academy of Medicine----------Cincinnati, 1892
Hottendorf, Louis P., Academy of Medicine--------Cincinnati, 1892
Hous, Geo. W., Montgomery Co. Medical Society-----Clayton, 1892
Hough, C. A., Warren County Medical Society-------Lebanon, 1890
Hough, Wayland S., Summit Co. Med. Society-Cuyahoga Falls, 1875
House, A. F.----------Cleveland, 1880
Howard, W. T., Cuyahoga Co. Medical Society -----Cleveland, 1895
Howell, J. Morton, Fayette Co. Med. Society-Washington C. H., 1892
Hubbard, Thomas, Toledo Medical Association--------Toledo, 1889
Hudson, J. F., N. E. O. M. A----------Canton, 1892
Hughes, E. E.----------Oak Hill, 1895
Hughes, F. M.----------Vermillion, 1892
Hughs, D. E.----------Delaware, 1895
Hughey, J. W. (Fayette County)----------Chillicothe, 1892
Hulin, O. W., Union Medical Ass'n of N. E. Ohio--Greenford, 1895
Humphrey, J. B., Muskingum Co. Medical Society--Zanesville, 1894
Humiston, Wm. H., Cuyahoga Co. Medical Society--Cleveland, 1880
Humphrey, C. H., Montgomery Co. Medical Society---Dayton, 1892
Hunt, A. H----------Wooster, 1892
Hurd, A., Hancock County Medical Society----------Findlay, 1870
Hussey, M. F., Shelby County Medical Society---- ----Sidney, 1892
HYATT, E. H.----------Delaware, 1862
Iddings, A. H.----------Dayton, 1879
Ikirt, G. P. (Champaign County)----------East Liverpool, 1882
Ireland, W. E., Fayette Co. Medical Society-Washington C. H., 1887
Ireland, S. A., Fayette Co. Medical Society--Washington C. H., 1892
Ireton, E. C.----------Columbus, 1892
Jackson, T. W., Northeastern Ohio Medical Ass'n-----Akron, 1895
Jacobs, Harold H., N. E. O. M. A.---------- ----------Akron, 1892

Jacobs, M. M., Butler Co. Medical Society----------Hamilton, 1895
Jacobs, W. C.----------Akron, 1892
James, A. D.----------Mt. Gilead, 1891
Jenkins, M. J., Central Ohio Medical Society-------Plain City, 1895
Jenks, Wm. O., Cuyahoga County Medical Society-Nottingham, 1892
Jennings, Ellis, Montgomery Co. Medical Society------Dayton, 1867
Jennings, G., Miami County Medical Society-----West Milton, 1892
Jewett, H. S., Montgomery County Medical Society----Dayton, 1871
Johnson, O., Central Ohio Medical Society------Worthington, 1878
Johnston, Alice M., Central Ohio Medical Society---Columbus, 1895
Johnston, C. E., Shelby County Medical Society-------Sidney, 1892
Jones, Wm. A.----------Toledo, 1892
Jones, L. M., Greene County Medical Society------Jamestown, 1892
Jones, J. D., Cuyahoga County Medical Society-----Cleveland, 1870
Jones, Geo. E., Academy of Medicine----------Cincinnati, 1892
Jones, H. S.----------Columbus, 1895
JONES, R. E., N. W. O. M. A.----------Gomer, 1863
JONES, T. W.----------Columbus, 1847
Joseph, Leopold, Academy of Medicine----------Cincinnati, 1892
Judkins, Wm., Academy of Medicine----------Cincinnati, 1892
Judkins, C. P., Academy of Medicine----------Cincinnati, 1887
Judkins, Jas. A.----------Barnesville, 1894
Junkerman, Geo. S., Academy of Medicine--------Cincinnati, 1892
Kaestlen, Samuel E., Cuyahoga Co. Medical Society-Cleveland, 1892
Kahn, L., Academy of Medicine----------Columbus, 1895
Kammann, Albert A., Academy of Medicine-------Cincinnati, 1892
Kautz, J. W., Brown County Medical Society--------Arnheim, 1892
KAY, ISAAC, Clarke County Medical Society-----Springfield, 1853
Keck, Peter A., Academy of Medicine----------Cincinnati, 1892
Kelly, H. R.----------Galion, 1868
Keller, B. T., Fayette Co. Medical Society------Bloomingburg, 1891
Keller, Thos. F----------Tiffin, 1887
Kemp, Lucia, Crawford County Medical Society-----Bucyrus, 1892
Kendig, Elias V., Ashland County Medical Society-Hayesville, 1874
Kerns, J. T., Walpole, E. O. M. S----------Bellaire, 1892
Kiely, W. E., Academy of Medicine----------Cincinnati, 1892

KINSMAN, D. N., Academy of Medicine----------Columbus, 1864
Kinnell, J. A., Hancock County Medical Society------Findlay, 1892
King, J. R , Academy of Medicine----------Cincinnati, 1892
Kirkley, Cyrus A., Toledo Medical Association--------Toledo, 1874
Kishler, Washington G----------St. Marys, 1892
Kitchen, Francis A., Toledo Medical Association-------Toledo, 1892
Kline, P. J., Hempstead Academy of Medicine----Portsmouth, 1895
Knowlton, W. A.----------Cleveland, 1892
Koehler, Max, Academy of Medicine----------Cincinnati, 1893
Kolb, Matthew G., Cuyahoga Co. Medical Society---Cleveland, 1892
Krause, B., Cuyahoga County Medical Society------Cleveland, 1880
Kramer, F. H., Academy of Medicine----------Cincinnati, 1892
Krause, L. S., Montgomery Co. Medical Society-W. Carrollton, 1892
Kreiger, Gustave S----------Madisonville, 1884
Kreider, C. L., Erie County Medical Society------Monroeville, 1892
Krouse, Louis J., Academy of Medicine----------Cincinnati, 1892
Kurtz, C. E----------4460 Berkeley Avenue, Chicago, 1875
Landman, Otto, Toledo Medical Association----------Toledo, 1892
Langdon, F. W., Academy of Medicine----------Cincinnati, 1892
LANDON, C. P., Central Ohio Medical Society----Westerville, 1851
Larimore, F. C., N. C. O. M. S----------Mt. Vernon, 1871
Lash, Josiah W., Ross County Medical Society-----Chillicothe, 1879
Lathrop, Arthur B., N. W. O. M. A----------Swanton, 1887
Lawless, James T., Toledo Medical Association---------Toledo, 1887
Lawrence, F. F., Academy of Medicine----------Columbus, 1888
Lawrence, J. C., Academy of Medicine----------Columbus, 1895
Leach, Sherman----------Mt. Sterling, 1888
Leahy, Maurice----------Tiffin, 1891
Lee, J. L., N. E. O. M. A----------Akron, 1892
Le Fevre, Edwin, Shelby County Medical Society------Sidney, 1891
Lehman, C. W., Preble Co. Medical Society----------Eaton, 1895
Leich, G. F., Cuyahoga County Medical Society----Cleveland, 1892
Lenhart, Charles M----------Zanesville, 1894
Leonard, W. W----------Delaware, 1891
LEONARD, B. B., N. O. M. A----------West Liberty, 1854
Leslie, J. M., Ross County Medical Society---------Chillicothe, 1878

Lewis, W. C. (Fairfield County)----------Rushville, 1869
Lichliter, David C., Montgomery Co. Med. Society-----Dayton, 1892
Lightner, S. B., Clinton County Medical Society-------Sabina, 1888
Lindsay, J. A., Eastern Ohio Medical Society-------Salineville, 1895
Longfellow, R. C., Academy of Medicine----------Cincinnati, 1892
Love, Ephraim W., Brown Co. Medical Society---Fayetteville, 1892
LOVING, STARLING, Academy of Medicine------Columbus, 1858
Lowman, J. H., Cuyahoga County Medical Society--Cleveland, 1877
Lucas, V. C., Cuyahoga County Medical Society-----Cleveland, 1892
Lusk, S. B., Marion Co. Medical Society----------Waynesfield, 1895
Lyle, Benj. F., Academy of Medicine----------Cincinnati, 1892
LYMAN, C. N., N. E. O. M. A----------Wadsworth, 1852
McClure, J. A----------Columbus, 1892
McClure, James, Washington Co. Medical Society----Marietta, 1866
McClung, John C., N. W. O. M. A----------Leipsic, 1887
McCollum, E. J., N. W. O. M. A----------Tiffin, 1871
McCoy, Clem. D., N. W. O. M. A----------Kenton, 1892
McCurdy, S. L., Tuscarawas Co. Med. Society--Pittsburgh, Pa., 1882
McCurdy, John, Mahoning Co. Medical Society--Youngstown, 1870
McCullough, Jos. A----------Steubenville, 1894
McClellan, J. S., Belmont County Medical Society----Bellaire, 1894
McDougal, Jno. G., Hildreth District M. A.---New Lexington, 1894
McGee, John B., Cuyahoga Co. Medical Society-----Cleveland, 1880
McGavren, Geo. W., N. W. O. M A----------Van Wert, 1892
McGavran, Samuel B----------Cadiz, 1887
McIntire, Wm., Central Ohio Medical Society. --Warrensburg, 1881
McIlhenny, J. J----------Dayton, 1847
McKee, Edward S., Academy of Medicine---------Cincinnati, 1886
McKinley, E. Burris, N. W. O. M. A----------Vaughnsville, 1887
McKecknie, Josiah B., Clinton Co. Medical Society-Cincinnati, 1892
McLean, J. T., Tuscarawas Co. Med. Society-New Philadelphia, 1884
McMurray, A. B----------Marion, 1879
McNeal, F. B. ----------Columbus, 1885
McQuaide, Thos. L. (Guernsey County)----------Cambridge, 1894
McVety, A. F., Lucas Co. Medical Society----------Toledo, 1895
Macready, James, Butler County Medical Society-----Monroe, 1885

Mackenzie, J. C., Academy of Medicine----------Cincinnati, 1892
Maerker, A. E. H., N. W. O. M. A----------Napoleon, 1892
Marquart, Oscar M., Greene Co. Medical Society-------Osborn, 1891
Marris, Joseph---------- ---------Columbus Grove, 1892
Markley, Lee, Brown County Medical Society-----Georgetown, 1892
Martin, Jas., N. E. O. M. A. (Wayne County)--Fredericksburg, 1892
Marshall, G. M., Hempstead Acad. of Medicine---Portsmouth, 1895
Marshall, W. C., Montgomery Co. Medical Society---Trotwood, 1892
Martin, John T., Marion County Medical Society------Marion, 1884
Martin, John C., Hancock County Medical Society----Findlay, 1887
Marsh, F. O., Academy of Medicine----------Cincinnati, 1892
Marquis, Thos. B., N. E. O. M. A----------New Lisbon, 1892
Mattoon, F. N. (Madison County)----------Plain City, 1881
Matthias, A. C., N. W. O. M. A---------- ----------Gilboa, 1892
Maynard, O. T----------Elyria, 1892
May, John B----------New Holland, 1892
Means, W. J., Central Ohio Medical Society--------Columbus, 1892
Melick, Wm. A., Muskingum Co. Medical Society--Zanesville, 1892
Merriman, D. F., Portage County Medical Society--Painesville, 1884
Merriam, E. D., Ashtabula Co. Medical Society------Conneaut, 1884
Merriman, Georgia, withdrawn----------Bucyrus, 1892
Merz, Chas. H., Erie County Medical Society---------Sandusky, 1891
Metzler, Abraham S., Holmes Co. Medical Society------Baltic, 1874
Mills, J. T., Central Ohio Medical Society----------Jersey, 1878
Milholland, Wm., Shelby County Medical Society-----Sidney, 1892
Miller, John F., Shelby County Medical Society-Port Jefferson, 1892
Miller, T. Clarke, N. E. O. M. A----------Massillon, 1893
Miller, Delbert J., Union County Medical Society--N. Benton, 1892
Miller, A. T., Tuscarawas Co. Medical Society-----Shanesville, 1890
Milliken, Daniel, Butler County Medical Society----Hamilton, 1879
Milliken, B. L., Cuyahoga Co. Medical Society------Cleveland, 1885
Mills, C. H., N. W. O. M. S----------Toledo, 1888
Mitchell, E. W., Academy of Medicine, Cincinnati--Avondale, 1892
Moncrief, David L., Wayne County Medical Society---Orrville, 1892
Moody, Milo M., Union Co. Medical Society--Chatham Center, 1892
Moore, D. L., Academy of Medicine----------Colunbus, 1895

Moore, Lyman G., Trumbull Co. Medical Society----Kinsman, 1878
Moore, H. M. W., Academy of Medicine----------Columbus, 1894
Morgan, R. J., Northwestern Ohio Medical Ass'n--Van Wert, 1895
Morgan, J. F., Hempstead Academy of Medicine-------Jackson, 1895
Mory, J. J----------St. Henrys, 1871
Morehouse, G. W----------Sparta, 1890
MORRIS, JONATHAN (Lawrence County)----------Ironton, 1853
Morris, Joseph, N. W. O. M. A----------Columbus Grove, 1879
Mosgrove, J. M., Champaign Co. Medical Society-------Urbana, 1884
MOUNTS, LEONARD, Warren Co Med. Society------Morrow, 1860
Munn, H. E., N. W. O. M. A----------Toledo, 1892
Murphy, C. F., Hempstead Academy of Medicine-Portsmouth, 1895
Murphy, John A., Academy of Medicine----------Cincinnati, 1872
Murphy, John W., Academy of Medicine----------Cincinnati, 1892
Murbach, Andrew J., N. W. O. M. A----------Archbald, 1874
Murray, Landon S., N. E. O. M. A----------Medina, 1890
Myers, Noah, Clarke County Medical Society------Springfield, 1892
Myers, I. A., N. C. O. M. S----------Shelby, 1892
Myers, J. E., Clarke County Medical Society-------Springfield, 1892
Nash, E. King (Summit County)----------Montrose, 1876
Nau, J. G. (Fairfield County)----------Carroll, 1878
Neil, Alexander----------Columbus, 1868
Nelson, J. W., Clarke County Medical Society----Springfield, 1892
Newton, C. W.----------Toledo, 1895
Noble, N. T----------St. Marys, 1892
Noble, Herbert E., N. W. O. M. A----------Stony Ridge, 1892
Noble, Chas. D----------Oberlin, 1893
Norris, Thos. B. (Franklin County)----------Alton, 1882
North, John, Toledo Medical Association----------Toledo, 1891
Norton, F. B., Cuyahoga County Medical Society----Cleveland, 1892
Noyes, H. J., Hildreth District M. A----------McConnellsville, 1888
Nunemacher, H. B-------440 Market Street, Philadelphia, Pa., 1875
Nungesser, J. J., Cleveland Medical Society--------Cleveland, 1895
Obitz, N.----------Columbus, 1895
Oglesbee, Wm. E., Warren Co. Medical Society---Waynesville, 1892
Ohlmacher, A. P., Cuyahoga Co. Medical Society----Cleveland, 1895

Oliver, J. C., Academy of Medicine----------Cincinnati, 1892
Olmstead, D. S., Holmes County Medical Society--Millersburg, 1892
Osborn, Mary E----------Canton, 1892
Oster, L. W., Cuyahoga County Medical Society----Cleveland, 1892
Owsley, J. B., Butler County Medical Society----Jacksonburg, 1871
Overly, Jno. E., Central Ohio Medical Society------Columbus, 1888
Palmer, Chauncey D., Academy of Medicine--------Cincinnati, 1871
PATTERSON, A. V----------Mansfield, 1861
Patrick, Nathan E., Muskingum Co. Med. Society---Zanesville, 1894
Patrick, O. H.----------Ada, 1895
PEARCE, ENOCH----------Steubenville, 1859
Pennell, W. W----------Frederickstown, 1884
Perkins, D. S., Cuyahoga County Medical Society---Cleveland, 1892
Peskind, Arnold, C. C. M. S----------Cleveland, 1892
Peter, Robert, Tuscarawas Co. Medical Society--------Toledo, 1891
Petitt, Richard R , Montgomery Co. Medical Society---Dayton, 1885
Phillips, W. S., N. W. Ohio Medical Society------Belle Centre, 1895
Piper, Wm., Belmont County Medical Society--------Bellaire, 1892
Porter, W. D., Academy of Medicine----------Cincinnati, 1892
Potter, S. B----------Frederickstown, 1892
Potter, Nathan, Ross County Medical Society---------Adelphi, 1890
Potts, Chas. N., Allen County Medical Society----------Lima, 1892
Powell, Wm. S----------Defiance, 1881
Powell, J. E., Hancock County Medical Society-------Findlay, 1892
Pratt, L. C.----------Bellefontaine, 1895
PRICE, JOSEPH, Portage County Medical Society--Randolph, 1852
Price, F. K., Tuscarawas Co. Medical Society--------Dennison, 1895
Prior, Amelia J., Academy of Medicine----------Cincinnati, 1892
Probst, C. O., Central Ohio Medical Society---------Columbus, 1892
Pugh, Frank H., N. W. O. M. A., Toledo State Hospital-Toledo, 1892
Pumphrey, R. J., Belmont Co. Medical Society------Massilon, 1895
Querner, Louis A., Academy of Medicine----------Cincinnati, 1892
Quirk, Howard W., Cuyahoga Co. Medical Society--Cleveland, 1889
Quinn, Allen T., Clinton Co. Medical Society-----Wilmington, 1881
Rambo, Cyrus M., Muskingum Co. Med. Society----Zanesville, 1894
Ranny, Sylvester W----------Columbus, 1878

Rank, W. C.----------Newark, 1895
Rankin, Theodore W., Academy of Medicine--------Columbus, 1881
Ransohoff, Joseph, Academy of Medicine---------Cincinnati, 1879
Rardin, Joseph S----------Portsmouth, 1892
Ravogli, Augustus, Academy of Medicine---------Cincinnati, 1892
Ray, J. H., Southern Ohio A. of M.----------Coalton, 1895
REAMY, THAD. A., Academy of Medicine--------Cincinnati, 1855
Redrow, I., Batavia County Medical Society ----Williamsburg, 1895
Reed, Calvin H., Toledo Medical Association---------Toledo, 1873
Reed, R. Harvey, N. C. O. M. A----------Columbus, 1884
Reed, T. J----------Massillon, 1881
Reed, Chas. A. L., Academy of Medicine---------Cincinnati, 1881
Reemelin, R. H., Academy of Medicine----------Cincinnati, 1892
REEVE, J. C., Montgomery Co. Med. Society---------Dayton, 1861
Reeve, J. C., Jr., Montgomery Co. Med. Society--------Dayton, 1892
Reif, Chas. F----------Fremont, 1892
Reinhart, James C., Toledo Medical Association--------Toledo, 1887
Rheinfrank, J. H., N. W. O. M. A----------Perrysburg, 1886
Rheinfrank, W. H.----------Perrysburgh, 1895
Renneker, A. P----------1612 Bay Miller St., Cincinnati, 1892
Rhu, Aug., Marion County Medical Society----------Marion, 1886
Rice, W. E----------Tuscola, Ill., 1892
Richards A., Perry Co. Medical Society-------New Lexington, 1895
Richardson, Alonzo B., Academy of Medicine------Columbus, 1891
Ricketts, Joseph V., Academy of Medicine--------Cincinnati, 1892
Ricketts, E. Irvin, Academy of Medicine----------Cincinnati, 1882
Ricketts, Edwin, Academy of Medicine----------Cincinnati, 1891
Ridgeway, N. B., N. C. M. S----------Galion, 1878
Riggs, J. M----------Bryan, 1873
ROBINSON, JAMES D., Wayne Co. Med. Society----Wooster, 1856
Roberds, T. W., Highland County Medical Society----Sardinia, 1892
Rodebaugh, Henry A----------Marysville, 1890
Rodgers, J. H----------Louisville, 1889
Rogers, H. W., Cuyahoga County Medical Society---Cleveland, 1892
Rogers, W. K., Acad. of Medicine----------Columbus, 1895
ROGERS, J. H., Clarke County Medical Society----Springfield, 1859

Romspert, J. A., Montgomery Co. Med. Soc---Dayton Asylum, 1892
Root, H. A., Toledo Medical Association----------Toledo, ----
Rosenwasser, M., Cuyahoga Co. Medical Society----Cleveland, 1880
Rosenfeld, A., Academy of Medicine----------Cincinnati, 1892
Rosengrant, Thos. S.----------Batesville, 1894
Roulet, Chas., Toledo Medical Association----------Toledo, 1892
Row, Geo. T., Pickaway County Medical Society----Circleville, 1881
Rowles, W. T., Academy of Medicine----------Columbus, 1888
Rudy, A. S., Allen County Medical Society----------Lima, 1892
Ruess, Henry A., N. C. O. M. S----------Mansfield, 1892
Russell, E. S., Tuscarawas Co. Medical Society-----Tuscarawas, 1880
Russell, Geo. C., Cuyahoga Co. Medical Society-----Cleveland, 1892
Sabin, Thos. M., Trumbull Co. Medical Society--------Warren, 1893
Sager, Jos., N. W. O. M. A----------Celina, 1882
Sampson, G. W.----------U. Sandusky, 1895
Santee, Leon B., Stark Co. Medical Society-------Marlborough, 1885
Sattler, Robert, Academy of Medicine----------Cincinnati, 1872
Sawyer, J. P., Cuyahoga County Medical Society----Cleveland, 1892
Sawyer, P. H., Cuyahoga County Medical Society---Cleveland, 1892
Scatterday, W. F.----------Columbus, 1895
Schnetzler, H. Marcus, Toledo Medical Association-----Toledo, 1874
Schwab, Louis, Academy of Medicine----------Cincinnati, 1892
Schwab, Emanuel, Academy of Medicine----------Cincinnati, 1892
Schutzbach, J. C., Tuscarawas Co. Medical Society--Strasburg, 1892
Schooley, Lindley----------Belmont, 1894
Schueller, J. B., Central Ohio Medical Society-------Columbus. 1869
Scott, B. B., Knox County Medical Society--------Mt. Vernon, 1892
Scott, N. Stone, Cuyahoga County Medical Society--Cleveland, 1892
SCOTT, WM. J., Cuyahoga County M. S----------Cleveland, 1855
Scott, Wm. Alfred (Fulton County)----------Swanton, 1878
Scott, X. C., N. E. O. M. A.----------Cleveland, 1874
SCOVILLE, S. S., Warren County Medical Society---Lebanon, 1859
Sears, O. T., Erie County Medical Society----------Put-in-Bay, 1892
Seeley, W. W., Academy of Medicine----------Cincinnati, 1871
Sittel, Theo., Academy of Medicine----------Cincinnati, 1892
Sewell, S. G., Greene County Medical Society-New Burlington, 1892

Shaw, Wm. E., Academy of Medicine----------Cincinnati, 1892
Shaller, John M., Academy of Medicine----------Cincinnati, 1892
Shalliott, Peter, Tuscarawas Co. M. S.----------Winesburg, 1891
Sharp, Amos W., Central O. M. S.----------Columbus, 1892
Sharp, B. M., Shelby County Medical Society----------Sidney, 1885
Sheldon, S. B, Brown County Medical Society------Five Mile, 1882
Sherman, H. G, Cuyahoga County Medical Society Cleveland, 1892
Shields, E. H., Academy of Medicine----------Cincinnati, 1895
Shumard, C----------Station C, Cincinnati, 1892
Sihler, Chr., Cuyahoga Medical Society----------Cleveland, 1892
Silver, D. R., Shelby County Medical Society----------Sidney, 1870
SINNETT, E., Licking County Medical Society------Granville, 1850
Sipher, J. N., Cuyahoga County Medical Society----Cleveland, 1892
Sisler, Lewis E., N. W. O. M A.----------Clinton, 1887
Skeel, R. E., Cuyahoga County Medical Society-----Cleveland, 1892
Skinner, P. D.----------Columbus, 1895
Slocum, Chas. E., N. W. O. M. A.----------Defiance, 1874
Smith, D. M.----------Newark, 1895
Smith, Wm. G., Portage County Medical Society-----Ravenna, 1885
Smith, H. H.----------Lexington, 1892
Smith, J. M. (Tuscarawas)----------New Philadelphia, 1884
Smith, Chas. N., Toledo Medical Association----------Toledo, 1887
Smith, D. B., Cuyahoga County Medical Society----Cleveland, 1892
Snodgrass, Jessie, N. W. O. M. A.----------Kenton, 1887
Snow, L. B., Cuyahoga County Medical Society-----Cleveland, 1892
Snyder, C.----------London, 1895
SNYDER, D. J. (Harrison Co.)----------Scio, 1850
Snyder, S. P----------New Bedford, ----
Snyder, D. P. (Coshocton Co.)----------New Bedford, 1882
Somerville, G. H., Cuyahoga Co. Medical Society--Cleveland, 1892
Southard, John Q.----------Marysville, 1882
Souders, Samuel, Montgomery County, M. S.----------Dean, 1879
Souders, R. L, N. W. O. M. A.---------(Wyandot Co.) Nevada, 1892
Spence, J. A. (Wellsville)----------Pittsburg, Pa., 1888
Speidel, C. G. E., Academy of Medicine----------Cincinnati, 1892
Sperry, Willis, N. E. O. M. S.----------Tallmadge, 1886

Spencer, E. R., N. E. O. M. S.----------Doylestown, 1885
Spiers, H. H.----------Ravenna, 1892
Stanton, Byron, Academy of Medicine----------Cincinnati, 1892
Straight, Howard S., Cuyahoga Co. Medical Society--Cleveland, 1892
Stansell, J. A.----------Forrest, 1866
Stamm, M., Sandusky County Medical Society-------Fremont, 1891
Stark, Sigmar, Academy of Medicine----------Cincinnati, 1892
Stanley, E----------Sandusky, 1870
Stein, G. S., Academy of Medicine----------Columbus, 1888
Steiner, D. W., Allen County Medical Society----------Lima, 1890
Stewart, Jno. O., Greene County Medical Society----Cedarville, 1892
Stewart, Wm. D., Toledo Medical Association----------Toledo, 1887
Stewart, Thos. H., Trumbull Co. Medical Society--Church Hill, 1877
Stewart, Robt. W., Academy of Medicine----------Cincinnati, 1892
STEPHENS, E. B., Warren County Medical Society--Lebanon, 1853
Stephenson, Y., Brown County Medical Society----Georgetown, 1892
Stevenson, Geo.W., Cuyahoga Co. Medical Society--Cleveland, 1892
Stevens, M. B., N. W. O. M. A.----------Defiance, 1887
Stevens, E. S., Warren County Medical Society------Lebanon, 1886
Stillman, F. L., Academy of Medicine----------Columbus, 1895
STILLWELL, THOS., Sandusky Co. Med. Society---Fremont, 1857
Stinson, Chas. H.----------Newark, 1894
Storey, Wm., Erie County Medical Society----------Castalia, 1884
Stockton, Geo., Academy of Medicine----------Columbus, 1895
STOCKSTILL, J. N. (Clarke County)----------New Carlisle, 1857
Stricker, L , Academy of Medicine----------Cincinnati, 1895
Sudhoff, Geo. F., Academy of Medicine----------Cincinnati, 1892
Sutton, H. T., Musk. County Medical Society-------Zanesville, 1894
SWENEY, R. L.----------Marion, 1859
Sykora, J., Cuyahoga County Medical Society-------Cleveland, 1892
Taft, Jonathan, Academy of Medicine----------Cincinnati, 1892
Taggart, H. D., Summit County Medical Society--------Akron, 1892
Talley, C. F.----------Hyattsville, 1895
Tangeman, C. W., Academy of Medicine----------Cincinnati, 1888
Tate, Geo. M.----------Botkins, 1892
Taylor, Wm. H., Academy of Medicine----------Cincinnati, 1874

Taylor, Clovis M.....Columbus, 1894
Telfair, Geo. M. (Clinton County).....Bloomington, 1884
Templeton, A. M., Musk. County Medical Society.....Zanesville, 1892
Templeton, B. F., Musk. County Medical Society.....Zanesville, 1892
Thomas, Frank W., Marion County Medical Society.....Marion, 1884
Thompson, F. E., Morrow Co. Medical Society.....Marengo, 1895
Thompson, J. A., Academy of Medicine.....Cincinnati, 1892
Thompson, S. R., Tuscarawas Co. Medical Society, Uhrichsville, 1892
Thorn, S. S., Toledo Medical Association.....Toledo, 1873
Thorner, Max., Academy of Medicine.....Cincinnati, 1892
Thrasher, A. B., Academy of Medicine.....Cincinnati, 1876
Tichenor, E. J., Warren County Medical Society.....Lebanon, 1869
Titus, A., Hempstead M. A. of M.....Portsmouth, 1888
Titlow, Benatta D., Clarke County Medical Society, Springfield, 1892
Tobey, Henry A., Toledo M. A.....State Hosp., Toledo, 1878
Todd, Fred. A., Toledo Med. Association.....State Hosp., Toledo, 1892
Todd, J. H., Wayne County Medical Society.....Wooster, 1892
Tracy, Jas. L., Toledo Medical Association.....Toledo, 1892
Trimble, C. E., Crawford County Medical Society.....Crestline, 1892
Trimble, R. T., Clinton County Medical Society.....New Vienna, 1881
Trout, J. Frances.....Lancaster, 1895
Trush, J., Academy of Medicine.....Cincinnati, 1892
Tuckerman, L. B., Cuyahoga Co. Medical Society.....Cleveland, 1891
Tydings, O., Piqua Soc. Clin. Med.....Piqua, 1892
Uhler, H. L., Marion Co. Medical Society.....Marion, 1895
Upson, Henry S., Cuyahoga Co. Medical Society.....Cleveland, 1888
Vail, D. T., Academy of Medicine.....Cincinnati, 1892
VANDERVOORT, J. W., Warren Co. Med. So.....Harveysburg, 1864
Van Pelt, Chas. L., Toledo Medical Association.....Toledo, 1887
Van Nette, Wesley, Crawford Co. Medical Society.....Poplar, 1892
VANNATA, E. (Muskingum County).....Fultonham, 1855
Vigor, F. A. (Fayette County).....Good Hope, 1884
Vogt, D. F., Cuyahoga Co. Med. Society (withdrawn) Cleveland, 1891
Vorhes, B. C.....Lee, 1895
Vorhies, Elmer E.....Cambridge, 1894
Wadsworth, Miner.....Hoytsville, 1892

Waggoner, Joseph, Portage County Medical Society--Ravanna, 1870
Wagner, Henry P., N. W. O. M. A----------Delphos, 1892
Wagenhals, F. W., Columbus Medical Club---------Columbus, 1885
Walker, Alonzo B., Union Medical Society----------Canton, 1882
Ward, Wadsworth A., Ashtabula Co. Med. Society--Conneaut, 1880
Warner, Frank, Academy of Medicine----------Columbus, 1884
Warner, C. J., N. C. O. M. S----------Congress, 1892
Ward, C. L., N. W. O. M. A----------Cridersville, 1891
Ward, Clarence S., Trumbull Co. Med. S----------Warren, 1875
Ward, Orin W----------Duncan's Falls, 1894
Watson, G. N., Cuyahoga County Medical Society--Cleveland, 1892
WEAVER, J. M., Montgomery Co. Medical Society----Dayton, 1865
Weber, Wm. C., Cuyahoga Co. Medical Society-----Cleveland, 1889
Webster, J. V., Belmont County Medical Society----Flushing, 1890
Weed, Theo. A----------Cleveland, 1880
Weeks, O. W., Marion County Medical Society--------Marion, 1884
Welsh, Absalom J., Fayette County M. S---------Mt. Sterling, 1890
Wells, Winfield S., Marion County Medical Society----Marion, 1892
Wenning, W. H., Academy of Medicine----------Cincinnati, 1892
West, T. J., N. W. O. M. A----------Tiffin, 1875
West, J. P., Belmont County Medical Society----------Bellaire, 1892
Whittaker, J. F., Jefferson County M. S--------Bloomingdale, 1892
Whitmer, J. E----------Millersburg, 1892
Whitaker, H. W., Central Ohio Medical Society-----Columbus, 1895
Whittaker, John T., Academy of Medicine---------Cincinnati, 1871
White, G. M., Academy of Medicine----------Columbus, 1888
Wilcox, S. S., Academy of Medicine----------Columbus, 1895
Wilson, D. C----------Ironton, 1872
Wilson, E. J----------Columbus, ----
Willson, C. H., Pike Co. Medical Society----------Idaho, 1895
WILLSON, WM. H. (Adams County)----------Greenfield, 1865
Williams, Brady O., Eastern Ohio M. S---------Martin's Ferry, 1891
Williams, W. E., Hempstead Acad. of Medicine--------Jackson, 1895
Williard, G. P., N. W. O. M. A----------Tiffin, 1875
Williamson, A. M., Montgomery County M. S---------Dayton, 1892
Williams, T. B., Cuyahoga Co. Medical Society---- Cleveland, 1886

Williams, J. L.----------Delaware, 1878
Wilson, J. L., Highland County Medical Society----Greenfield, 1871
Williamson, M. S., Hancock County Medical Society--Findlay, 1891
Wirth, R., Academy of Medicine----------Columbus, 1886
Wirt, Wm. E., Cuyahoga Co. Medical Society-------Cleveland, 1891
Wiseman, Osbourne M., Muskingum Co. Med. So---Zanesville, 1894
Withrow, J. M., Academy of Medicine----------Cincinnati, 1892
Wolfenstein, Julius, Cuyahoga Co. Med Society------Cleveland, 1892
Wood, John S----------Cleveland, Collinwood, 1880
Wood, W. H., Jefferson Co. Medical Society--------Smithfield, 1892
WOODS, JOS. T., Toledo Medical Association---------Toledo, 1862
Woods, Elizabeth, Toledo Medical Association--------Toledo, 1892
Woods, D. B., Trumbull Co. Medical Society----------Warren, 1852
Woodruff, E. W.----------Jersey, 1895
Woodruff, L., C. O. M. S.----------Alton, 1867
Woodbridge, Jno. E., Mahoning Co. Med. Society Youngstown, 1886
Woodworth, W. H., Col. of P. and S., Baltimore----Delaware, 1895
Wright, S. St. J., Summit Co. Medical Society------Tallmadge, 1880
Wright, J. A., N. W. O. M. A.----------Toledo, 1892
Wright, Thos. M., Miami County M. C. Soc.----------Troy, 1891
Wright, Jno. H.----------New Lexington, 1894
Wright, Jno. W.----------Columbus, 1885
Wylie, J. L., Brown County Medical Society----------Ripley, 1872
Yarnall, F. H., Hildreth District Medical Soc.--W. Lafayette, 1892
Yingling, G. S. (withdrawn), N. W. O. M. A.----------Tiffin, 1892
Young, D. Howard, Erie County Medical Society-----Chicago, 1892
Zenner, Phillip, Academy of Medicine----------Cincinnati, 1882
Zinke, E. G., Academy of Medicine----------Cincinnati, 1892
Zimmerman, H. A.----------Youngstown, 1892
Zopfi, W. J., Hancock County Medical Society--------Findlay, 1891

DELEGATE MEMBERS.

Culbertson, J. C., Academy of Medicine.....Cincinnati
Cable, Thomas B., Shelby Co. Medical Society.....Pemberton
Cass, Edward, Muskingum Co. Medical Society.....Dresden
Durbin, P. M., Sandusky Co. Medical Society.....Woodville
Frame, Jno. A., Columbus Academy of Medicine.....Athens
Good, Harmon, Montgomery Co. Medical Society...Sulphur Grove
Harding, B. F., N. C. O. M. A.....Mansfield
Halderman, S. S., H. M. A. of M.....Portsmouth
Harbour, C. W.....Anna
Rouse, Wm. L.....Paintersville
Slager, J. L., N. W. O. M. S.....Paulding
Thompson, Wm E., Belmont Co. Medical Society.....St. Clairsville
Whitten, Wm. F.....Columbus

HONORARY MEMBERS.

Roberts Bartholow, M. D.----------Philadelphia, Pa., 1879
James F. Hibbard, M. D.----------Richmond, Ind., 1871
E. W. Jenks, M. D.----------Detroit, Mich., 1875
Jonn Kerr, M. D.----------Canton, China, 1875
N. Senn, M. D.----------Chicago, 1890
Victor A. Vaughan, M. D.----------Ann Arbor, Mich., 1889
Donald Maclean, M. D.----------Detroit, Mich., 1894
Hunter Robb, M. D. (Permanent Member, 1895.)---Cleveland, 1894
P. Beeman, M. D.----------Sidney, 1872
J. C. Blackburn, M. D.----------Covington, Ky., 1857
M. H. Harding, M. D.----------Lawrenceburg, Ind., 1854
R. E. Haughton, M. D.----------Richmond, Ind., 1863
E. L. Hill, M. D.----------Oxford, 1856
J. M. Kitchen, M. D.----------Indianapolis, Ind., 1866
W. B. Lyons, M. D.----------Huntington, Ind., 1866
J. F. Noyes, M. D.----------Detroit, Mich., 1875
E. D. Safford, M. D.----------Parkersburg, W. Va., 1870
J. M. Stevenson, M. D.----------Pittsburgh, Pa., 1866
R. S. Sutton, M. D.----------Pittsburgh, Pa., 1884
Judson Daland, M. D.----------Philadelphia, Pa., 1895

MEDICAL LEGISLATION.

REPORT OF THE SPECIAL COMMITTEE ON STATE MEDICAL LEGISLATION.

Pursuant to an arrangement by the Secretary of the Society and Committee of Arrangements, the Special Committee on State Medical Legislation met in the Senate Chamber of the State-house, Columbus, Ohio, on May 15th, 1895, at 9 o'clock A. M., Dr. J. C. Culbertson, of Cincinnati, in the chair, and Dr. J. A. Kimmell, of Findlay, was elected Secretary.

The roll being called, twenty-seven members were found to be present (see list of members marked asterisk).

Dr. Dandridge called for the reading of the Mosgrove Bill. After the reading by the Secretary, Dr. Dandridge moved that it be endorsed by the committee and its passage urged. Seconded by Dr. S. S. Halderman, of Portsmouth.

Dr. A. B. Richardson, of Columbus, and Dr. H. M. Brown, of Hillsboro, made eloquent speeches in favor of the bill in its entirety.

Dr. G. A. Collamore, of Toledo, moved to amend the bill by abridgment, omitting part of Section 4403*c*, relating to the present illegal practitioners, and Section 4403*f*, relating to the practice of midwifery.

Dr. E. H. Hyatt, of Delaware, seconded the motion, and moved a further amendment omitting local regis-

tration with the probate judge and reducing the fee to fifteen dollars.

Dr. Wirt spoke in favor of local registration, but thought the fee too high. He thought if we got a law for the future only, permitting all irregulars to practice who were now located, then we should ask for an ideal bill.

Dr. D. O. Weeks, of Marion, was in favor of the general features of the bill, but was in favor of reducing the fee and omitting the reference to present practitioners.

Dr. E. M. Boggess, of Washington Court House, made a manly and reasonable appeal for the whole bill as read.

Addresses in favor of the entire bill were made by Drs. M. F. Hussey, of Sidney, H. M. Brown, J. D. Hayes, of Somerset, and G. Stephenson, of Georgetown.

Dr. Richardson spoke against the amendment.

Dr. N. R. Coleman then closed the discussion by a strong argument in favor of the passage of the whole bill without amendments.

The vote for the amending of Section 4403*c* was lost. The vote on the omission of Section 4403*f* was lost.

Moved by Dr. Hyatt, seconded by Dr. Weeks, that the fee be reduced from $25.00 to $15.00. Lost.

Moved by Dr. Weeks to place the salary of the secretary at $1,000 instead of $1,500. Lost.

The vote on the original question, *i. e.*, approval of the Mosgrove Bill, was then taken and was unanimously carried.

Dr. Richardson then moved that an EXECUTIVE COMMITTEE OF FIVE be appointed by the Chair to carry out the object of this meeting, and that the State Society be requested to make an appropriation to pay the expenses of this committee. Carried. (See page 29 for action of Society.)

Dr. Weeks moved that an effort be made to have the word "manual" stricken from the statute under Work and Labor Clause, so that physicians might be enabled to collect their bills under one hundred dollars under said clause. Carried.

Executive Committee of Special Committee on State Medical Legislation: Chairman, Dr. N. R. Coleman, Columbus; Secretary, N. P. Dandridge, Cincinnati; S. S. Halderman, Portsmouth; W. E. Wirt, Cleveland; H. M. Brown, Hillsboro.

Moved to adjourn. Carried.

J. C. CULBERTSON, *Chairman.*

J. A. KIMMELL, *Secretary.*

AN ACT TO REGULATE THE PRACTICE OF MEDICINE IN THE STATE OF OHIO.

THE MOSGROVE BILL.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, that Section 4403 be amended so as to read as follows:

SECTION 4403. Within thirty (30) days after the passage of this Act, the Governor, by and with the advice and consent of the Senate, shall appoint a State Board of Medical Registration and Examination, consisting of seven (7) members, who shall be physicians in good standing in their profession. Representation shall be given to the schools of practice in the State as nearly as possible in proportion to their numerical strength in the State; provided, however, that no one school of practice shall have a majority of the whole Board.

The members of this Board shall be appointed for a term of seven (7) years; provided, however, that the members first appointed under the Act shall be appointed for the term of one, two, three, four, five, six and seven years respectively.

Said Board shall organize by electing a President and Treasurer from among their number. They shall also elect a Secretary, who may or may not be a member of the Board, and who shall be a physician in good standing in his profession.

The salary of the Secretary shall not exceed fifteen hundred dollars ($1,500) per annum, to be fixed by the

Board, and necessary expenses in performing the duties of his office.

The Treasurer shall be required to give a bond in the sum of ten thousand dollars ($10,000), approved by the Board.

Members of the Board shall receive the sum of ten dollars ($10.00) per day for the time actually employed in the discharge of their duties, and their necessary expenses pertaining thereto; provided, however, that the salary and expenses of the Secretary and the per diem and expenses of the Board shall be met from fees hereinafter provided in this Act.

Said Board shall have a common seal and shall formulate rules to govern its own actions. The President and Secretary shall have the power to administer oaths.

Said Board shall hold meetings at the capital of this State on the first Tuesday of January, April, July, and October of each year, and such other meetings as said Board may from time to time appoint. Five (5) members shall constitute a quorum.

Said Board shall keep a record of all the proceedings thereof, and also a record or register of all applicants for certificates as provided herein, together with the age of the applicant, time spent in the study of medicine, and the name and location of the institution granting said applicant the degree of Doctor of Medicine or Surgery. Said register shall also show whether such applicant was rejected or a certificate granted under this Act. Such books and register shall be prima facie evidence of all matters therein recorded.

SECTION 2. That Sections 4403, 4403*a*, and 4403*b*, be supplemented by supplementary Sections 4403*c*, 4403*d*, 4403*e*, 4403*f*, 4403*g* and 4403*h*.

SECTION 4403*c*. On and after the passage of this Act, no person shall practice Medicine, Surgery, or Midwifery, in any of its branches, in this State, unless

such person has complied with the requirements of this Act.

If a graduate in Medicine or Surgery, he shall present his diploma to the Board for verification as to its genuineness. If the diploma is found to be genuine and from a legally chartered institution in good standing, as determined by this Board, and the person named therein be the person claiming and presenting the same, the said Board of Registration and Examination shall issue their certificate to that effect, signed by the President and Secretary thereof, and such certificate shall be conclusive evidence as to the lawful right of the owner of the same to practice Medicine in this State as soon as he has complied with the further requirements of this Act as to its recordation.

Applicants presenting diplomas for verification under this Act shall accompany the same with the affidavit of the holder and applicant that he is the lawful possessor of the same, and that he is the person therein named, and giving his or her age and the time spent in the study of Medicine. Such affidavit may be taken before any person authorized to administer oaths under the laws of this State, and the same shall be attested under the hand and official seal of such officer; and any person swearing falsely shall be deemed guilty of perjury and punished accordingly. Applicants may present their diplomas and affidavits as provided in this Act by letter or proxy, and the Board shall issue its certificate the same as if the owner of the diploma was present.

Any person not a graduate of a School of Medicine in good standing, as determined by this Board, who is a legal practitioner of Medicine under the laws of the State in force at the time of the passage of this Act, shall be entitled to register and receive a certificate from said Board, which shall entitle the lawful holder thereof to all the privileges contemplated in this Act.

Such applicant shall be required to furnish said Board an affidavit as hereinbefore provided, setting forth the length of time and the place or places during and at which he or she has engaged in the practice of Medicine or Surgery.

Any person engaged in the practice of Medicine in the State at the time of the passage of this Act, who is not a legal practitioner under the laws of the State in force at the time of the passage of this Act, or shall possess a diploma from a medical college not in good standing as determined by this Board, shall present himself before the said Board of Registration and Examination and submit to such examination as the Board may require; and if the examination be satisfactory to the Board, the said Board shall issue its certificate in accordance with the facts, and the lawful holder of such certificate shall be entitled to all the rights and privileges herein mentioned, for the period of one year next ensuing from the date thereof.

For the issuance of a certificate under any of the preceding regulations of this Act, the affirmative vote of not less than five members shall be necessary.

The fee paid to the State Board of Registration and Examination for the verification of a diploma and the issuance of the certificate thereon, or for the issuance of a certificate to any legal practitioner of Medicine at the time of the passage of this Act, shall be five dollars ($5.00). For the examination of applicants desiring to practice as provided herein, the fee shall be twenty-five dollars ($25.00). In the latter case, said fee shall not be returned in event of a failure to issue a certificate thereon, but the applicant may at any time within a year after such refusal, again present himself for examination without the payment of an additional fee.

All fees shall be paid to the Treasurer of the Board, and by him deposited with the Treasurer of the State

of Ohio for the use of the State Board of Registration and Examination.

Said moneys shall be paid only on the warrant of the Auditor of State, issued on the presentation to the Auditor of vouchers approved by a majority of said Board of Registration and Examination.

SECTION 4403*d*. The person receiving a certificate to practice Medicine or Surgery from the State Board of Registration and Examination as herein provided, shall file the same, or a certified copy thereof, with the Probate Judge of the county in which he or she resides, and said Probate Judge shall file said certificate or copy thereof, giving the date of the same and the name of the person to whom the same is issued, and giving the date of such filing in a book to be provided and kept for that purpose. Said Probate Judge shall each year furnish to the Secretary of the State Board of Registration and Examination a list of all certificates on file in his office, and upon notice to him of a change in location or the death of a person possessing a certificate, or of the revocation of a certificate granted to such person, said Probate Judge shall enter at the proper places in the record so kept by him a memorandum of said fact, so that the record so kept by said Probate Judge of the county shall correspond with the records of said Board as kept by the Secretary thereof.

In case the holder of a certificate shall move into another county of this State, he or she shall procure from the Probate Judge of the county a certified copy of said certificate, and file the same with the Probate Judge of the county to which he or she shall so remove. Said Probate Judge shall file and enter the same with like effect as if the same were the original certificate.

Said records shall always be open to the public for inspection.

The Probate Judge of the county shall receive for the recording of said certificate, the sum of fifty (50) cents each, to be paid by the holder thereof.

SECTION 4403*e*. Said Board of Registration and Examination may refuse to grant a certificate to any person who has been convicted of a felony, and may, by an affirmative vote of not less than five members of the Board, revoke a certificate already issued, for the same cause.

SECTION 4403*f*. Every person practicing Midwifery in this State on the passage of this Act shall, within ninety (90) days thereafter, register with the Probate Judge of the county in which she resides, in the manner hereinbefore provided for physicians, giving her age and length of time and the place or places during and at which she has been engaged in said practice, and make affidavit thereto, and shall pay a fee to said Probate Judge of five dollars ($5.00), fifty (50) cents of which he shall retain as his compensation, and the balance remit to the Treasurer of the State Board of Registration and Examination. Said Probate Judge shall issue a certificate to the one so registering, in accordance with the facts herein set forth, upon a blank form furnished by the State Board of Registration and Examination, which shall entitle the holder to practice Midwifery in the County in which said certificate is issued. The Probate Judge shall annually, on the first Monday in January, make returns to the Secretary of the State Board of Registration and Examination of all such certificates on record in his office.

All persons beginning hereafter the practice of Midwifery in this State, shall appear before the State Board of Registration and Examination and submit to such examination in Midwifery as the Board shall require, and if such examination is satisfactory, the said Board shall, upon the receipt of ten dollars ($10.00), issue

a certificate the same as provided for midwives in practice at the time of the passage of this Act, which certificate shall be registered with the Probate Judge as hereinbefore provided in the case of Midwives in practice at the time of the passage of this Act, but for such registration with the Probate Judge, holders of said certificates shall be required to pay a fee of fifty (50) cents only.

The certificate granted to practice Midwifery shall not give the holder the right to perform version, or treat breech or face presentation, or do any obstetric operation requiring instruments, or to treat any other abnormal condition except in emergencies.

SECTION 4403*g*. Any person shall be regarded as practicing Medicine or Surgery within the meaning of this Act who shall append the letters M.D. or M.B. to his or her name, or for a fee prescribe, direct, or recommend for the use of any person, any drug or medicine or other agency for the treatment, cure, or relief of any wound, fracture, or bodily injury, infirmity, or disease; provided, however, that nothing in this Act shall be construed to prohibit service in case of emergency or the domestic administration of family remedies; and this Act shall not apply to Commissioned Medical Officers of the United States Army, Navy, or Marine Hospital Service in the discharge of their professional duties, or physicians from other States or Territories, who are legal practitioners of Medicine in the States or Territories in which they reside, in actual consultation with legal practitioners of this State under this Act.

SECTION 4403*h*. Any person practicing Medicine or Surgery in this State without having first complied with the provisions of this Act as herein provided, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than two hundred dollars

($200.00) nor more than five hundred dollars ($500.00), or be imprisoned in the county jail not less than thirty (30) days nor more than one year, or both fined and imprisoned.

Any person practicing Midwifery within the State without first complying with the requirements of this Act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than twenty-five dollars ($25.00) nor more than one hundred dollars ($100.00).

Such fines, when collected, shall be paid one-third to the person, corporation or medical society making complaint or furnishing information, and one-third to the Poor Fund of the county, and one-third to the State Board of Registration and Examination.

It shall be the duty of the prosecuting attorneys of the respective counties to prosecute violations of this Act.

SECTION 3. Said original Section 4403 is hereby repealed.

SECTION 4. This Act shall take effect and be in force from and after its passage.

REMARKS AND OPINIONS OF MEMBERS OF THE SPECIAL COMMITTEE ON STATE MEDICAL LEGISLATION.

DR. DAN MILLIKIN, Hamilton, Ohio, President Ohio State Medical Society:

The Mosgrove Bill simply prescribes a method, and gives the power, to prevent incompetent men and women from obtaining money under false pretenses of ability to cure disease. It offers protection to careless people, but does not attempt to regulate the unessential minutiæ of conduct or belief. It will hurt no man who, like myself, desires simple government and little of it. It

will please the regular profession. It will please the honest adherents of "schools" and "systems." It will please the people.

DR. S. S. HALDERMAN, Portsmouth, O., Member Executive Committee:

Personally I am in favor of providing for a State Board of Examiners, but such legislation at this time seems impossible. As a bill providing for a purely registration feature, the Mosgrove Bill meets all that is desirable, and is one that no honorable practitioner of medicine need fear. It wrongs no one legally qualified to practice medicine, and protects the people from "quacks" and ignorant pretenders. It does not antagonize any school of medicine. In fact, it seems quite clear to my mind that science is opening the gates so wide that it will not be long till there will be no "schools," but the dividing line will be drawn between educated physicians and pretenders of all sorts; for this we are working, and for this the Mosgrove Bill provides at least the entering wedge.

DR. B. B. LEONARD, West Liberty:

I think the Mosgrove Bill as adopted by the committee and endorsed by the State Medical Society is the best, if made into law, that we can possibly secure by legislation. If its provisions are adopted and faithfully enforced, it will do much to save the people of the State from the ravages of the *foragers on society* who prey on the credulous and ignorant, who always become victims to the intrigues of the pretentious charlatan.

DR. M. F. HUSSEY, Sidney:

I endorse the original Mosgrove Bill in *toto*. It may have its imperfections, which can be more easily rectified after it is once on the statutes; but it is the only one ever framed or possibly can be, that is so unanimously endorsed by the dominant schools of the State. Coöperation from the other schools and persistent work of the Executive Committee will surely bring about the

desired legislation at the next session of the Legislature.

In conversation with Dr. H. E. Beebe, chairman of the legislative branch of the Ohio Homeopathic Society, he says that he and his committee will spare no pains in putting the Mosgrove Bill on the statute-books.

DR. JOSEPH E. COOK, Cleveland, Chairman Committee on Legislation, Cleveland Medical Society:

After carefully reading and discussing the various features of the Mosgrove Medical Bill, I am strong in my belief that it is the most feasible, reasonable, and consistent medical act ever proposed or presented to the Ohio State Legislature; and in saying this, I voice the sentiment of the Cleveland Medical Society with its three hundred and sixty members. We sincerely hope and trust that it may become a law at the next session of the Legislature.

DR. E. H. HYATT, Delaware:

Our legislators have (in the past) deemed it important and necessary to protect by law the *life* of the *horse*, the *cow*, the *sheep* and even the *hog*, from the incompetent veterinary; also the life of the quail, the pheasant and the "finny tribe" have the protection of law thrown around them; and even the *life* of the rabbit is shielded from being hunted by the ferret. But there is no law upon the statutes of the great State of Ohio to prevent tinkering with *human life* by incompetent hands, notwithstanding the importunities and pleadings by the medical profession for legal protection of human life for a dozen years or more! "Oh! Shame! where is thy blush!"

DR. JOHN EAKIN, Patriot:

The Mosgrove Bill, while not a perfect bill, is the best that can be enacted into law in Ohio at the present time. It should not be amended by elimination, substitution or addition. Its passage as introduced should be insisted upon. It should be introduced at the beginning of the session and pushed through both houses. This means that the committee of each house should

be friendly and its personnel suggested by legislative committee appointed by State Society. Delay allows organization and perfection of plans of forces of opposition and endangers success. With the physicians of the State united in demanding its passage, success is almost certain.

DR. N. R. COLEMAN, Chairman Executive Committee of the Special Committee on Medical Legislation:

It is utterly impossible to frame a bill for regulating the practice of medicine, embodying all the individual views of each member of the profession.

The bill framed at Columbus, December 21st, 1894, and known as the original Mosgrove Bill, by representatives from all schools, contains more good features and less objectionable ones, and affords greater good to a greater number, than any similar bill that has ever before been presented to the Legislature of Ohio.

It has been discussed from all points of view and by all schools of medicine for almost two years, and has been endorsed by all schools at various times. We cannot afford to waste our time on the minor points, but let us endeavor, with a united effort and all our energies, to place this bill upon the statute-books, and it can be very easily amended thereafter, if experience demonstrates the necessity.

DR. J. A. KIMMELL, Findlay, Secretary of Special Committee on Medical Legislation:

If the physicians of Ohio wish to place themselves on a footing with those of other States, or even on a level with the dentists and veterinary surgeons of their own State, and redeem Ohio from the unenviable reputation of being the dumping-ground for the charlatans of the nation and foreign countries, then let them stand together, shoulder to shoulder, in the pending effort to secure the passage of the Mosgrove Bill, which will secure to them their well-deserved dignity.

DR. H. M. BROWN, Hillsboro, Member Exec. Com.:

I have to say that I heartily endorse the Mosgrove Bill in its entirety. While it may not meet the require-

ments of all men's fancies, in the main it will afford the profession a large measure of protection, and if we support it and work up a concerted action among all legal practitioners, we can but succeed.

DR. THOS. H. STEWART, Church Hill:

I heartily approve of the "Mosgrove Bill" as it passed the Senate at the last session of the Legislature. I believe it is the fairest and most carefully formulated bill ever presented to any Ohio Legislature, and that if the physicians of the State will but use the political influence they undoubtedly possess with the members elected to the next General Assembly, personally, and through the county medical societies, it can be passed.

DR. W. L. ROUSE, Paintersville:

The Mosgrove Bill will be the entering wedge to split the rock of ignorance that obstructs the pathway of medical science. "Elevate medical education, regulate medical practice?" Yes, and *pray*, *pay* and *push* for the much needed assistance from Columbus this winter.

DR. O. W. WEEKS, Marion:

The Mosgrove Bill promotes a higher standard of medical education in all of its departments, and affords equal protection to all persons who may need the services of those who have attained proficiency and skill under its provisions, as well as to the members of the profession.

DR. L. D. ALLARD, Flat:

As members of the Special Committee on State Medical Legislation we met in Columbus, 14th and 15th of May, 1895, and after no little discussion of this important matter it was almost unanimously voted to recommend to the General Assembly of Ohio the passage of the Mosgrove Bill, regulating the practice of medicine in the State of Ohio. Said bill was heartily recommended without any alterations.

DR. J. D. HAYES, Somerset:

I heartily endorse the Mosgrove Bill, and in so doing express the sentiments of every reputable practitioner of medicine in Perry County. After closely scrutinizing the bill I find that it does not contain, to me, one single objectionable feature. Surely, the medical profession—the noblest profession of them all, the one most expensive in its acquirement, the one most arduous in its practice—is entitled to as much recognition from the Legislature of Ohio as are the druggists and the veterinaries. In asking for the passage of this bill we are certainly asking no more than any honorable body of men have a right to ask from an honest body of legislators.

LIST OF DELEGATES TO STATE MEDICAL LEGISLATIVE CONVENTION.

* Members present at meeting.

† Alternatee.

*Allard, L. D., M. D.----------Flat, Pike Co.
Aris, J. F., M. D.---------- Toledo Medical Association.
*Boggess, E. M., M. D.----------Washington C. H., Fayette Co.
*Bain, F. D., M. D.----------Kenton, Hardin Co.
Beck, J. N., M. D.----------West Jefferson, Madison Co.
*Brown, H. M., M. D., Exec. Com.----------Hillsboro, Highland Co.
*Butler, G. W., M. D.----------Columbus, Franklin Co.
*Coleman, N. R., M. D., Exec. Com.----Columbus, 264 E. Town St.
*†Collamore, G. A., M. D.----------Toledo Medical Association.
*Cass, Edward, M. D.----------Dresden, Muskingum Co
*Cook, J. E., M. D.------Cleveland, Cuyahoga Co., 127 Franklin St.
Calhoun, Wm., M. D.----------East Liverpool, Columbiana Co.
Culbertson, J. C., M. D., Chairman----------Cincinnati.
*Dandridge, N. P., M. D., Exec. Com.-Cincinnati, 147 W. Broadway
Duncan, A. M., M. D.----------Bucyrus, Crawford Co.
†Dixson, W. A., M. D.----------Georgetown, Brown Co.
*Eakine, J., M. D.----------Patriot, Gallia Co.
Floyd, J. C. M., M. D.----------Steubenville, Jefferson Co.
*Gibbon, H. B., M. D.----------Tiffin, Seneca Co.
*Groves, J. E., M. D.----------Uhrichsville, Tuscarawas Co.
Hixon, M. M., M. D.----------Dupont, Putnam Co.
*Harrison, E. B., M. D.----------Napoleon, Henry Co.
Hill, W. W., M. D.----------Weston, Wood Co.
Henderson, D. W., M. D.----------Marysville, Union Co.
*Hyatt, E. H., M. D.----------Delaware, Delaware Co.
Herrick, H. J., M. D.----------Cleveland, Cuyahoga Co.

*Hussey, M. F., M. D.----------Sidrey, Shelby Co.
*Hiner, S. B., M. D.----------Lima, Allen Co.
*Halderman, S. S., M. D., Exec. Com.--------Portsmouth, Scioto Co.
†Hall, W. A., M. D.----------Chillicothe, Ross Co.
*Hayes, J. D., M. D.----------Somerset, Perry Co.
*Jones, H. E., M. D.----------Circleville, Pickaway Co.
*Kimmell, J. A., M. D., Secretary----------Findlay, Hancock Co.
*Lash, J. W., M. D.----------Chillicothe, Ross Co.
*Leonard, B. B., M. D.----------West Liberty, Logan Co.
†LeFebre, Edward, M. D.----------Sidney, Shelby Co.
Lindsey, J. W., M. D.----------Salineville, Columbiana Co.
Long, J. N., M. D.----------Bryan, Williams Co.
Morgan, J. T., M. D.----------Jackson, Jackson Co.
*Milliken, Dan, M. D.----------Hamilton, Butler Co.
McCurdy, John, M. D.----------Youngstown, Mahoning Co.
Mills, J. F., M. D.----------Jersey, Licking Co.
Nurse, J. D., M. D.----------Lancaster, Fairfield Co.
Parker, E. W., M. D.----------Gallipolis, Gallia Co.
Richardson, D. H., M. D.----------Celina, Mercer Co.
*Richardson, A. B., M. D.----------Columbus, Franklin Co.
*Rouse, W. L., M. D.----------Paintersville, Green Co.
*Sampson, G. W., M. D.----------Upper Sandusky, Wyandot Co.
Slocum, Chas., M. D.----------Defiance, Defiance Co.
Snyder, D. J., M. D.----------Scio, Harrison Co.
*Stewart, J. H., M. D.----------Church Hill, Trumbull Co.
*Stephenson, G., M. D.----------Georgetown, Brown Co.
Spahr, C. H., M. D.----------Jamestown, Green Co.
*Seymore, C. M., M. D.----------Medina Co.
*Trickle, E. H., M. D.----------Cutler, Washington Co.
Titus, J. M., M. D.----------Pomeroy, Meigs Co.
Waters, R. L., M. D.----------Lakeside, Ottawa Co.
West, J. P., M. D.----------Bellaire, Belmont Co.
*Weeks, O. W., M. D.----------Marion, Marion Co.
Weaver, J. M., M. D.----------Dayton, Montgomery Co.
*†Wirt, Wm. E., M. D., Exec. Com.--------Cleveland, Cuyahoga Co.

*Present. THOMAS HUBBARD, *Secretary O. S. M. S.*

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